

Chapter IV. Factors Affecting Industry Employment and Occupational Utilization, 2002–12

Occupational employment may change over time, for several reasons. For example, an occupation's employment could increase because of growing demand for goods and services produced by industries in which the employment is concentrated. Alternatively, increases in the utilization of an occupation in those industries could boost the occupation's overall employment. This chapter presents information about both categories of factors—those affecting industry employment and those affecting occupational utilization within industries—that drive changes in occupational employment.

Industry employment

Many assumptions underlie the Bureau of Labor Statistics (BLS) projections of the aggregate economy and of industry output, productivity, and employment. Often, these assumptions bear specifically on macroeconomic factors, such as the aggregate unemployment rate, the anticipated time path of labor productivity, and expectations regarding the Federal budget surplus or deficit. Other assumptions deal with factors that affect industry-specific measures of economic activity.

Detailed industry employment projections are based largely on time-series models, which, by their very nature, project future economic behavior on the basis of a continuation of economic relationships that held in the past. For the most part, the determinants of industry employment are expressed both in the structure of the models' equations and as adjustments imposed on the specific equations to ensure that the models are indeed making a smooth transition from actual historical data to projected results. However, one of the most important steps associated with the preparation of the BLS projections is a detailed review of the results by analysts who have studied recent economic trends in specific industries. In some cases, the results of the aggregate and industry models are modified because of the analysts' judgment that historical relationships need to be redefined in some manner.

As discussed in Chapter II, the 2002–12 projections were the first to incorporate the 2002 North American Industry Classification System (NAICS). Table IV–1 presents historical and projected information about employment and output for aggregate and detailed industries. Industry sector employment projections prepared in the Division of Industry Employment Projections (DIEP) used a comprehensive modeling technique that estimates output as well as

employment. More detailed industry employment projections produced using historical time series information are included in the matrix and are consistent with their parent industry sector, however projections of output were not developed for these industries. Specific factors that underlie the projections of industry employment for DIEP sectors are presented in table IV–2 to allow the user to better understand the rationale behind projected changes in industry employment and output.

Occupational utilization

BLS projections of wage and salary employment are developed within the framework of an industry-occupation matrix, which shows the occupational distribution in an industry. Historical data indicate that the occupational distribution of industries changes over time as the utilization of some occupations changes relative to that of other occupations.

Among the various factors that can affect the utilization of workers in an occupation in particular industries are several kinds of changes: in technology, business practices, the mix of goods and services produced, and the size of business establishments. BLS staff analyze each occupation in the matrix to identify the factors that are likely to cause an increase or decrease in utilization of the occupation within a particular industry in the future. The analyses incorporate judgments about new trends that may influence occupational utilization, such as the use of the Internet or electronic commerce. Table IV–3 contains brief descriptions of the factors underlying changes in occupational utilization within industries projected to occur between 2002 and 2012. Occupations appear in alphabetical order. Although all detailed occupations were analyzed, utilization for many occupations was projected to remain unchanged. These occupations are not included in the table. In addition, factors are discussed for only the most significant industries—those with the highest share of an occupation's employment.

In developing the projections, BLS staff made hundreds of analytical decisions of the kind set forth in the preceding paragraph. To maintain consistency among analysts, guidelines for changing distributions were established as follows: small change = ± 10 percent; moderate change = ± 20 percent; large change = ± 35 percent; very large change = ± 50 percent.

Table IV-1. Employment and output by industry, 1992, 2002, and projected 2012

Industry title and North American Industry Classification System code	Employment							Output				
	Thousands of jobs			Change		Average annual rate of change		Billions of chained 1996 dollars			Average annual rate of change	
	1992	2002	2012	1992-2002	2002-2012	1992-2002	2002-2012	1992	2002	2012	1992-2002	2002-2012
Nonagriculture wage and salary¹	109,526	131,063	152,690	21,537	21,627	1.8	1.5	11,448	15,818	21,973	3.3	3.3
Mining (21)	610	512	451	-98	-61	-1.7	-1.3	155	166	156	.7	-.6
Oil and gas extraction (211)	182	123	88	-60	-34	-3.9	-3.2	94	87	80	-.7	-.9
Mining (except oil and gas) (212)	272	212	180	-60	-32	-2.5	-1.6	47	54	52	1.4	-.5
Coal mining (2121)	118	75	52	-43	-23	-4.4	-3.5	22	26	23	1.8	-1.1
Metal ore mining (2122)	50	29	18	-21	-11	-5.2	-4.8	11	10	11	-.6	.8
Nonmetallic mineral mining and quarrying (2123) ..	104	108	110	3	2	.3	.2	14	18	17	2.1	-.5
Support activities for mining (213)	156	177	183	22	6	1.3	.3	14	24	26	5.3	.9
Utilities (22)	726	600	565	-126	-34	-1.9	-.6	278	267	320	-.4	1.8
Electric power generation, transmission, and distribution (2211)	537	436	405	-101	-31	-2.1	-.7	207	207	254	.0	2.0
Natural gas distribution (2212)	154	116	90	-38	-26	-2.8	-2.5	66	53	58	-2.1	.9
Water, sewage, and other systems (2213)	35	49	71	13	23	3.2	3.9	5	6	8	2.2	2.7
Construction (23)	4,608	6,732	7,745	2,124	1,014	3.9	1.4	547	719	852	2.8	1.7
Construction of buildings (236)	1,187	1,584	1,706	397	123	2.9	.7	-	-	-	-	-
Residential building construction (2361)	551	807	895	257	88	3.9	1.0	-	-	-	-	-
Nonresidential building construction (2362)	637	776	811	140	35	2.0	.4	-	-	-	-	-
Heavy and civil engineering construction (237)	734	930	992	196	62	2.4	.6	-	-	-	-	-
Utility system construction (2371)	284	381	421	96	41	3.0	1.0	-	-	-	-	-
Land subdivision (2372)	81	86	87	5	1	.6	.1	-	-	-	-	-
Highway, street, and bridge construction (2373)	264	344	363	81	19	2.7	.5	-	-	-	-	-
Other heavy and civil engineering construction (2379)	105	119	120	14	1	1.3	.1	-	-	-	-	-
Specialty trade contractors (2380)	2,686	4,218	5,047	1,532	830	4.6	1.8	-	-	-	-	-
Foundation, structure, and building exterior contractors (2381)	607	915	1,078	309	163	4.2	1.7	-	-	-	-	-
Building equipment contractors (2382)	1,179	1,843	2,275	663	433	4.6	2.1	-	-	-	-	-
Building finishing contractors (2383)	554	880	1,011	325	131	4.7	1.4	-	-	-	-	-
Other specialty trade contractors (2389)	346	581	683	235	103	5.3	1.6	-	-	-	-	-
Manufacturing (31-33)	16,799	15,307	15,149	-1,492	-158	-.9	-.1	3,067	3,840	5,361	2.3	3.4
Food manufacturing (311)	1,518	1,525	1,597	7	72	.0	.5	384	437	517	1.3	1.7
Animal food manufacturing (3111)	55	52	52	-4	1	-.7	.1	25	30	38	2.1	2.2
Grain and oilseed milling (3112)	71	62	61	-9	-1	-1.3	-.1	49	57	70	1.6	2.0
Sugar and confectionery product manufacturing (3113)	103	83	80	-20	-3	-2.1	-.3	22	26	30	1.7	1.6
Fruit and vegetable preserving and specialty food manufacturing (3114)	218	182	180	-36	-2	-1.8	-.1	44	50	59	1.4	1.7
Dairy product manufacturing (3115)	143	137	124	-6	-13	-.4	-1.0	57	56	58	-.3	.4
Animal slaughtering and processing (3116)	438	520	601	83	80	1.7	1.4	98	118	144	1.9	2.0
Seafood product preparation and packaging (3117)	55	44	40	-11	-4	-2.3	-.8	8	7	8	-1.2	1.2
Bakeries and tortilla manufacturing (3118)	290	295	303	4	9	.1	.3	39	43	53	1.1	2.0
Other food manufacturing (3119)	146	152	155	5	4	.4	.2	44	51	59	1.5	1.5
Beverage and tobacco product manufacturing (312) ..	209	206	179	-3	-27	-.1	-1.4	96	98	105	.3	.7
Beverage manufacturing (3121)	165	172	158	7	-14	.4	-.8	59	64	74	.8	1.3
Tobacco manufacturing (3122)	44	33	20	-10	-13	-2.7	-4.8	36	34	33	-.5	-.3
Textile mills (313)	479	293	157	-186	-136	-4.8	-6.1	51	45	36	-1.4	-2.2
Fiber, yarn, and thread mills (3131)	97	64	37	-33	-27	-4.1	-5.3	12	11	8	-1.0	-2.5
Fabric mills (3132)	256	147	80	-109	-67	-5.4	-5.9	26	22	21	-1.7	-.4
Textile and fabric finishing and fabric coating mills (3133)	126	82	40	-44	-42	-4.2	-6.9	13	12	7	-1.0	-6.0
Textile product mills (314)	202	196	181	-6	-16	-.3	-.8	26	30	35	1.4	1.3
Textile furnishings mills (3141)	120	119	111	-1	-8	-.1	-.7	18	21	23	1.8	1.0
Other textile product mills (3149)	82	78	70	-5	-8	-.6	-1.1	9	9	11	.6	2.1
Apparel manufacturing (315)	905	358	112	-548	-246	-8.9	-11.0	64	50	23	-2.4	-7.6
Apparel knitting mills (3151)	110	50	20	-60	-30	-7.7	-8.7	10	6	2	-4.3	-9.7
Cut and sew apparel manufacturing (3152)	752	282	77	-470	-205	-9.4	-12.2	50	40	17	-2.2	-8.1
Apparel accessories and other apparel manufacturing (3159)	43	26	15	-17	-11	-4.8	-5.4	4	4	3	-1.3	-1.5
Leather and allied product manufacturing (316)	121	50	33	-71	-17	-8.5	-4.0	10	8	6	-2.5	-2.6

See footnotes at end of table.

Table IV-1. Employment and output by industry, 1992, 2002, and projected 2012—Continued

Industry title and North American Industry Classification System code	Employment							Output				
	Thousands of jobs			Change		Average annual rate of change		Billions of chained 1996 dollars			Average annual rate of change	
	1992	2002	2012	1992-2002	2002-2012	1992-2002	2002-2012	1992	2002	2012	1992-2002	2002-2012
Leather and hide tanning and finishing (3161)	15	9	5	-7	-4	-5.7	-6.3	3	3	1	-1.5	-7.7
Footwear manufacturing (3162)	72	21	18	-51	-4	-11.5	-1.8	5	3	4	-3.6	2.1
Other leather and allied product manufacturing (3169)	33	20	11	-13	-9	-5.0	-5.9	3	2	1	-1.6	-7.7
Wood product manufacturing (321)	502	557	634	55	77	1.0	1.3	73	83	112	1.2	3.0
Sawmills and wood preservation (3211)	134	121	110	-13	-11	-1.0	-1.0	25	26	34	.6	2.7
Veneer, plywood, and engineered wood product manufacturing (3212)	88	116	138	28	21	2.8	1.7	17	20	26	1.8	2.6
Other wood product manufacturing (3219)	280	320	386	39	67	1.3	1.9	32	37	52	1.5	3.4
Paper manufacturing (322)	640	550	477	-90	-72	-1.5	-1.4	146	141	144	-.4	.2
Pulp, paper, and paperboard mills (3221)	232	168	126	-63	-42	-3.1	-2.8	73	68	65	-.8	-.5
Converted paper product manufacturing (3222)	408	382	351	-26	-31	-7	-8	73	73	79	.0	.8
Printing and related support activities (323)	780	710	734	-70	24	-.9	.3	92	91	94	-.1	.3
Petroleum and coal products manufacturing (324)	152	119	102	-33	-18	-2.4	-1.6	161	181	199	1.2	1.0
Chemical manufacturing (325)	1,029	930	891	-99	-38	-1.0	-.4	363	401	450	1.0	1.2
Basic chemical manufacturing (3251)	246	171	140	-76	-31	-3.6	-2.0	117	98	76	-1.8	-2.5
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing (3252)	151	114	89	-37	-26	-2.8	-2.5	54	56	54	.4	-.4
Pesticide, fertilizer, and other agricultural chemical manufacturing (3253)	54	45	35	-10	-10	-1.9	-2.4	23	19	22	-2.1	1.9
Pharmaceutical and medicine manufacturing (3254)	225	293	361	68	68	2.7	2.1	72	112	157	4.5	3.5
Paint, coating, and adhesive manufacturing (3255)	81	72	62	-8	-11	-1.1	-1.6	22	24	30	.8	2.1
Soap, cleaning compound, and toilet preparation manufacturing (3256)	127	122	125	-5	3	-.4	.3	43	52	64	1.8	2.0
Other chemical product and preparation manufacturing (3259)	144	112	79	-32	-33	-2.4	-3.4	34	36	42	.6	1.3
Plastics and rubber products manufacturing (326)	819	854	991	35	138	.4	1.5	122	164	245	3.0	4.1
Plastics product manufacturing (3261)	620	668	797	48	128	.8	1.8	95	133	198	3.4	4.1
Rubber product manufacturing (3262)	199	185	195	-14	10	-.7	.5	27	31	47	1.4	4.0
Nonmetallic mineral product manufacturing (327)	487	519	579	32	60	.6	1.1	69	85	114	2.1	2.9
Clay product and refractory manufacturing (3271)	79	72	80	-7	9	-.9	1.1	7	8	10	.2	3.2
Glass and glass product manufacturing (3272)	145	126	125	-19	-1	-1.4	-1	19	22	33	1.6	3.9
Cement and concrete product manufacturing (3273)	178	230	278	52	48	2.6	1.9	27	38	49	3.4	2.5
Lime and gypsum product manufacturing (3274)	14	19	21	5	2	3.0	.9	4	5	6	1.6	2.1
Other nonmetallic mineral product manufacturing (3279)	72	72	75	0	3	.1	.4	12	13	16	1.0	2.3
Primary metal manufacturing (331)	630	511	494	-119	-17	-2.1	-.3	140	137	160	-.2	1.5
Iron and steel mills and ferroalloy manufacturing (3311)	168	107	76	-61	-31	-4.4	-3.4	47	49	56	.4	1.4
Steel product manufacturing from purchased steel (3312)	66	63	60	-3	-3	-.4	-.5	16	15	18	-.7	1.5
Alumina and aluminum production and processing (3313)	100	80	79	-19	-1	-2.1	-2	29	25	26	-1.5	.3
Nonferrous metal (except aluminum) production and processing (3314)	102	81	80	-20	-1	-2.2	-2	26	22	21	-1.9	-.3
Foundries (3315)	196	180	199	-16	20	-.9	1.0	21	25	38	2.1	4.2
Fabricated metal product manufacturing (332)	1,497	1,548	1,645	51	97	.3	.6	186	226	315	2.0	3.4
Forging and stamping (3321)	122	114	132	-9	18	-.7	1.5	18	23	36	2.6	4.5
Cutlery and handtool manufacturing (3322)	73	65	70	-8	6	-1.2	.8	8	10	15	1.9	3.7
Architectural and structural metals manufacturing (3323)	327	400	478	74	77	2.1	1.8	41	55	81	3.1	3.9
Boiler, tank, and shipping container manufacturing (3324)	108	95	90	-13	-5	-1.3	-.5	21	20	26	-.6	2.6
Hardware manufacturing (3325)	54	43	45	-11	3	-2.3	.6	9	10	14	.8	3.9
Spring and wire product manufacturing (3326)	74	71	59	-4	-12	-.5	-1.8	6	8	9	2.2	1.2
Machine shops; turned product; and screw, nut, and bolt manufacturing (3327)	287	318	333	32	15	1.1	.5	29	41	62	3.7	4.2
Coating, engraving, heat treating, and allied activities (3328)	137	148	151	11	4	.8	.2	12	16	25	2.8	4.4

See footnotes at end of table.

Table IV-1. Employment and output by industry, 1992, 2002, and projected 2012—Continued

Industry title and North American Industry Classification System code	Employment							Output				
	Thousands of jobs			Change		Average annual rate of change		Billions of chained 1996 dollars			Average annual rate of change	
	1992	2002	2012	1992-2002	2002-2012	1992-2002	2002-2012	1992	2002	2012	1992-2002	2002-2012
Other fabricated metal product manufacturing (3329)	316	296	287	-20	-9	-0.7	-0.3	42	43	49	0.3	1.2
Machinery manufacturing (333)	1,309	1,237	1,357	-72	120	-6	.9	186	230	341	2.1	4.0
Agriculture, construction, and mining machinery manufacturing (3331)	201	201	212	1	10	.0	.5	33	42	60	2.5	3.5
Industrial machinery manufacturing (3332)	142	132	125	-10	-6	-7	-5	22	31	47	3.3	4.4
Commercial and service industry machinery manufacturing (3333)	138	132	141	-6	9	-5	.6	22	19	27	-1.3	3.6
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing (3334)	161	167	189	7	22	.4	1.2	22	29	40	2.8	3.2
Metalworking machinery manufacturing (3335)	241	217	251	-24	34	-1.0	1.5	21	23	38	.9	4.9
Engine, turbine, and power transmission equipment manufacturing (3336)	111	100	100	-11	0	-1.0	.0	23	34	44	4.1	2.7
Other general purpose machinery manufacturing (3339)	317	288	339	-29	51	-9	1.6	43	51	84	1.7	5.2
Computer and electronic product manufacturing (334)	1,707	1,521	1,333	-186	-189	-1.1	-1.3	225	557	1,705	9.5	11.8
Computer and peripheral equipment manufacturing (3341)	329	250	182	-79	-68	-2.7	-3.1	28	263	2,293	24.9	24.2
Communications equipment manufacturing (3342)	210	191	201	-19	10	-9	.5	45	100	268	8.2	10.4
Audio and video equipment manufacturing (3343)	58	42	38	-16	-3	-3.2	-.8	8	9	10	1.0	1.2
Semiconductor and other electronic component manufacturing (3344)	519	531	452	12	-79	.2	-1.6	67	134	149	7.2	1.1
Navigational, measuring, electromedical, and control instruments manufacturing (3345)	549	451	396	-98	-55	-1.9	-1.3	79	92	126	1.4	3.2
Manufacturing and reproducing magnetic and optical media (3346)	44	57	63	13	6	2.7	1.1	8	7	9	-1.4	2.1
Electrical equipment, appliance, and component manufacturing (335)	580	499	486	-81	-13	-1.5	-.3	88	103	142	1.6	3.3
Electric lighting equipment manufacturing (3351)	74	72	70	-2	-2	-.2	-.3	10	12	14	1.8	1.4
Household appliance manufacturing (3352)	106	98	84	-8	-14	-.8	-1.5	18	22	29	2.2	2.8
Electrical equipment manufacturing (3353)	219	176	180	-43	4	-2.1	.2	26	29	46	.8	4.7
Other electrical equipment and component manufacturing (3359)	180	152	151	-28	-1	-1.7	-.1	33	41	54	1.9	2.9
Transportation equipment manufacturing (336)	1,977	1,829	1,787	-148	-41	-.8	-.2	462	600	802	2.6	3.0
Motor vehicle manufacturing (3361)	260	267	251	7	-16	.3	-.6	166	236	319	3.6	3.1
Motor vehicle body and trailer manufacturing (3362)	126	154	172	28	18	2.0	1.1	15	22	39	3.7	5.7
Motor vehicle parts manufacturing (3363)	661	731	758	70	27	1.0	.4	115	187	275	5.0	3.9
Aerospace product and parts manufacturing (3364)	711	468	386	-242	-83	-4.1	-1.9	138	116	117	-1.7	.1
Railroad rolling stock manufacturing (3365)	27	23	24	-4	1	-1.7	.6	5	8	12	4.0	4.2
Ship and boat building (3366)	157	146	157	-10	11	-.7	.7	16	19	27	1.6	3.8
Other transportation equipment manufacturing (3369)	36	40	40	4	0	1.0	.1	7	12	16	5.9	2.4
Furniture and related product manufacturing (337)	563	605	666	42	62	.7	1.0	51	66	89	2.7	3.0
Household and institutional furniture and kitchen cabinet manufacturing (3371)	373	400	450	28	49	.7	1.2	30	39	53	2.7	3.0
Office furniture (including fixtures) manufacturing (3372)	146	151	155	5	5	.3	.3	16	20	27	2.2	3.1
Other furniture related product manufacturing (3379)	44	54	61	10	7	2.0	1.3	5	7	10	4.1	2.8
Miscellaneous manufacturing (339)	693	692	715	-1	24	.0	.3	85	114	151	3.0	2.9
Medical equipment and supplies manufacturing (3391)	297	309	329	12	20	.4	.6	37	55	91	4.1	5.2
Other miscellaneous manufacturing (3399)	395	383	387	-12	4	-.3	.1	49	59	60	2.0	.1
Wholesale trade (42)	5,110	5,641	6,279	531	638	1.0	1.1	600	1,025	1,622	5.5	4.7
Merchant wholesalers, durable goods (423)	2,699	3,007	3,464	308	457	1.1	1.4	-	-	-	-	-

See footnotes at end of table.

Table IV-1. Employment and output by industry, 1992, 2002, and projected 2012—Continued

Industry title and North American Industry Classification System code	Employment							Output				
	Thousands of jobs			Change		Average annual rate of change		Billions of chained 1996 dollars			Average annual rate of change	
	1992	2002	2012	1992-2002	2002-2012	1992-2002	2002-2012	1992	2002	2012	1992-2002	2002-2012
Motor vehicle and motor vehicle parts and supplies merchant wholesalers (4231)	302	346	393	43	47	1.3	1.3	-	-	-	-	-
Furniture and home furnishing merchant wholesalers (4232)	95	108	126	13	18	1.3	1.6	-	-	-	-	-
Lumber and other construction materials merchant wholesalers (4233)	170	225	270	56	45	2.9	1.8	-	-	-	-	-
Professional and commercial equipment and supplies merchant wholesalers (4234)	584	659	790	76	130	1.2	1.8	-	-	-	-	-
Metal and mineral (except petroleum) merchant wholesalers (4235)	118	126	147	8	21	.7	1.5	-	-	-	-	-
Electrical and electronic goods merchant wholesalers (4236)	329	367	450	38	83	1.1	2.1	-	-	-	-	-
Hardware, and plumbing and heating equipment and supplies merchant wholesalers (4237)	206	233	267	27	33	1.3	1.3	-	-	-	-	-
Machinery, equipment, and supplies merchant wholesalers (4238)	646	676	724	30	48	.5	.7	-	-	-	-	-
Miscellaneous durable goods merchant wholesalers (4239)	251	267	299	17	32	.6	1.1	-	-	-	-	-
Merchant wholesalers, nondurable goods (424)	1,892	2,015	2,124	124	109	.6	.5	-	-	-	-	-
Paper and paper product merchant wholesalers (4241)	159	160	176	1	16	.1	.9	-	-	-	-	-
Drugs and druggists' sundries merchant wholesalers (4242)	142	213	251	70	39	4.1	1.7	-	-	-	-	-
Apparel, piece goods, and notions merchant wholesalers (4243)	155	150	160	-5	10	-.3	.6	-	-	-	-	-
Grocery and related product wholesalers (4244)	621	676	725	55	49	.9	.7	-	-	-	-	-
Farm product raw material merchant wholesalers (4245)	95	75	57	-20	-19	-2.3	-2.8	-	-	-	-	-
Chemical and allied products merchant wholesalers (4246)	122	133	147	11	14	.9	1.0	-	-	-	-	-
Petroleum and petroleum products merchant wholesalers (4247)	137	111	77	-26	-34	-2.0	-3.6	-	-	-	-	-
Beer, wine, and distilled alcoholic beverage merchant wholesalers (4248)	115	133	138	18	5	1.5	.4	-	-	-	-	-
Miscellaneous nondurable goods merchant wholesalers (4249)	346	364	393	18	29	.5	.8	-	-	-	-	-
Wholesale electronic markets and agents and brokers (425)	519	619	691	99	72	1.8	1.1	-	-	-	-	-
Retail trade (44-45)	12,828	15,047	17,129	2,219	2,082	1.6	1.3	667	1,013	1,420	4.3	3.4
Motor vehicle and parts dealers (441)	1,428	1,879	2,124	451	245	2.8	1.2	-	-	-	-	-
Automobile dealers (4411)	935	1,250	1,408	316	158	3.0	1.2	-	-	-	-	-
Other motor vehicle dealers (4412)	81	142	168	61	26	5.8	1.7	-	-	-	-	-
Automotive parts, accessories, and tire stores (4413)	413	487	548	74	61	1.7	1.2	-	-	-	-	-
Furniture and home furnishings stores (442)	410	540	662	130	122	2.8	2.1	-	-	-	-	-
Furniture stores (4421)	229	281	332	52	52	2.1	1.7	-	-	-	-	-
Home furnishings stores (4422)	182	259	330	78	70	3.6	2.4	-	-	-	-	-
Electronics and appliance stores (443)	378	529	731	151	202	3.4	3.3	-	-	-	-	-
Building material and garden equipment and supplies dealers (444)	872	1,179	1,435	307	256	3.1	2.0	-	-	-	-	-
Building material and supplies dealers (4441)	734	1,026	1,259	292	232	3.4	2.1	-	-	-	-	-
Lawn and garden equipment and supplies stores (4442)	138	153	176	15	24	1.0	1.4	-	-	-	-	-
Food and beverage stores (445)	2,744	2,872	3,046	128	174	.5	.6	-	-	-	-	-
Grocery stores (4451)	2,378	2,478	2,611	100	133	.4	.5	-	-	-	-	-
Specialty food stores (4452)	228	254	298	25	45	1.1	1.6	-	-	-	-	-
Beer, wine, and liquor stores (4453)	138	140	136	2	-4	.2	-.3	-	-	-	-	-
Health and personal care stores (446)	780	947	1,080	166	133	2.0	1.3	-	-	-	-	-
Gasoline stations (447)	876	904	951	27	47	.3	.5	-	-	-	-	-
Clothing and clothing accessories stores (448)	1,249	1,308	1,304	59	-4	.5	.0	-	-	-	-	-
Clothing stores (4481)	893	957	952	64	-5	.7	.0	-	-	-	-	-
Shoe stores (4482)	202	182	170	-20	-12	-1.0	-.7	-	-	-	-	-
Jewelry, luggage, and leather goods stores (4483)	154	169	181	15	12	.9	.7	-	-	-	-	-

See footnotes at end of table.

Table IV-1. Employment and output by industry, 1992, 2002, and projected 2012—Continued

Industry title and North American Industry Classification System code	Employment							Output				
	Thousands of jobs			Change		Average annual rate of change		Billions of chained 1996 dollars			Average annual rate of change	
	1992	2002	2012	1992-2002	2002-2012	1992-2002	2002-2012	1992	2002	2012	1992-2002	2002-2012
Sporting goods, hobby, book, and music stores (451)	534	660	820	126	160	2.1	2.2	-	-	-	-	-
Sporting goods, hobby, and musical instrument stores (4511)	351	435	517	84	82	2.2	1.7	-	-	-	-	-
Book, periodical, and music stores (4512)	184	225	303	41	78	2.0	3.0	-	-	-	-	-
General merchandise stores (452)	2,414	2,821	3,169	407	348	1.6	1.2	-	-	-	-	-
Department stores (4521)	1,445	1,710	2,019	265	309	1.7	1.7	-	-	-	-	-
Other general merchandise stores (4529)	969	1,111	1,150	142	39	1.4	.3	-	-	-	-	-
Miscellaneous store retailers (453)	737	962	1,263	226	301	2.7	2.8	-	-	-	-	-
Florists (4531)	112	123	134	11	11	1.0	.9	-	-	-	-	-
Office supplies, stationery, and gift stores (4532) ..	353	435	562	82	128	2.1	2.6	-	-	-	-	-
Used merchandise stores (4533)	64	108	159	44	51	5.3	4.0	-	-	-	-	-
Other miscellaneous store retailers (4539)	208	297	408	89	111	3.6	3.2	-	-	-	-	-
Nonstore retailers (454)	405	447	546	43	99	1.0	2.0	-	-	-	-	-
Electronic shopping and mail-order houses (4541)	163	224	326	61	102	3.3	3.8	-	-	-	-	-
Vending machine operators (4542)	73	60	65	-13	5	-1.9	.8	-	-	-	-	-
Direct selling establishments (4543)	168	163	155	-6	-8	-3	-5	-	-	-	-	-
Transportation and warehousing (48, 492, 493)	3,462	4,205	5,120	744	914	2.0	2.0	436	576	820	2.8	3.6
Air transportation (481)	520	559	626	40	67	.7	1.1	100	142	229	3.6	4.9
Scheduled air transportation (4811)	491	516	564	25	48	.5	.9	-	-	-	-	-
Nonscheduled air transportation (4812)	29	43	62	14	19	4.1	3.7	-	-	-	-	-
Rail transportation (482)	248	218	197	-30	-21	-1.3	-1.0	37	44	58	1.8	2.7
Water transportation (483)	57	52	50	-5	-1	-9	-3	21	21	28	-1	2.8
Deep sea, coastal, and great lakes water transportation (4831)	35	32	32	-4	0	-1.1	.1	-	-	-	-	-
Inland water transportation (4832)	21	20	18	-1	-2	-7	-9	-	-	-	-	-
Truck transportation and couriers and messengers (484, 492)	1,496	1,897	2,404	401	507	2.4	2.4	170	240	349	3.5	3.8
Truck transportation (484)	1,107	1,339	1,614	232	275	1.9	1.9	-	-	-	-	-
General freight trucking (4841)	797	957	1,156	160	199	1.9	1.9	-	-	-	-	-
Specialized freight trucking (4842)	311	382	458	71	76	2.1	1.8	-	-	-	-	-
Couriers and messengers (492)	389	558	790	169	232	3.7	3.5	-	-	-	-	-
Couriers (4921)	354	503	711	150	207	3.6	3.5	-	-	-	-	-
Local messengers and local delivery (4922)	35	55	80	20	25	4.5	3.9	-	-	-	-	-
Transit and ground passenger transportation (485)	288	372	488	84	116	2.6	2.8	21	26	30	2.2	1.2
Urban transit systems (4851)	25	38	57	14	18	4.6	4.0	-	-	-	-	-
Interurban and rural bus transportation (4852)	22	23	25	1	3	.5	1.1	-	-	-	-	-
Taxi and limousine service (4853)	58	66	77	8	11	1.3	1.6	-	-	-	-	-
School and employee bus transportation (4854)	121	154	200	33	46	2.4	2.7	-	-	-	-	-
Charter bus industry (4855)	27	35	46	8	11	2.8	2.8	-	-	-	-	-
Other transit and ground passenger transportation (4859)	36	56	82	20	27	4.5	4.0	-	-	-	-	-
Pipeline transportation (486)	60	42	42	-19	0	-3.6	.0	30	27	29	-1.0	.7
Scenic and sightseeing transportation and support activities for transportation (487, 488)	388	553	652	165	100	3.6	1.7	36	44	57	2.1	2.6
Scenic and sightseeing transportation (487)	18	26	30	8	4	3.9	1.4	-	-	-	-	-
Support activities for transportation (488)	370	527	623	157	96	3.6	1.7	-	-	-	-	-
Warehousing and storage (493)	406	514	660	108	147	2.4	2.5	21	31	42	4.1	3.1
Information (51)	2,641	3,420	4,052	779	632	2.6	1.7	481	891	1,498	6.4	5.3
Publishing industries (511)	854	970	1,133	115	163	1.3	1.6	134	222	334	5.1	4.2
Newspaper, periodical, book, and directory publishers (5111)	740	714	703	-27	-11	-4	-1	105	122	132	1.5	.8
Software publishers (5112)	114	256	430	142	174	8.4	5.3	31	102	229	12.6	8.4
Internet services, data processing, and other information services (516, 518, 519)	307	529	773	222	244	5.6	3.9	25	87	233	13.1	10.3
Internet publishing and broadcasting (516)	16	35	49	19	14	8.0	3.5	-	-	-	-	-
Internet service providers, web search portals, and data processing services (518)	259	447	663	189	216	5.6	4.0	-	-	-	-	-

See footnotes at end of table.

Table IV-1. Employment and output by industry, 1992, 2002, and projected 2012—Continued

Industry title and North American Industry Classification System code	Employment							Output				
	Thousands of jobs			Change		Average annual rate of change		Billions of chained 1996 dollars			Average annual rate of change	
	1992	2002	2012	1992-2002	2002-2012	1992-2002	2002-2012	1992	2002	2012	1992-2002	2002-2012
Internet service providers and web search portals (5181)	39	142	233	103	91	13.8	5.1	-	-	-	-	-
Data processing, hosting, and related services (5182)	220	305	430	86	125	3.3	3.5	-	-	-	-	-
Other information services (519)	32	47	61	14	14	3.7	2.7	-	-	-	-	-
Motion picture and sound recording industries (512) ..	254	387	503	133	116	4.3	2.7	50	93	178	6.3	6.7
Motion picture and video industries (5121)	231	360	472	129	112	4.5	2.7	-	-	-	-	-
Sound recording industries (5122)	23	27	32	4	4	1.6	1.4	-	-	-	-	-
Broadcasting and telecommunications (515, 517)	1,226	1,535	1,643	309	109	2.3	.7	272	491	745	6.1	4.3
Radio and television broadcasting (5151)	226	241	235	15	-6	.6	-2	34	40	46	1.7	1.5
Cable and other subscription programming and program distribution (5152, 5175)	126	221	300	95	79	5.7	3.1	36	53	64	3.9	1.9
Cable and other subscription programming (5152)	54	93	127	39	34	5.7	3.2	-	-	-	-	-
Cable and other program distribution (5175)	73	128	173	55	45	5.8	3.1	-	-	-	-	-
Telecommunications, except cable and other program distribution (517, except 5175)	873	1,073	1,108	200	35	2.1	.3	202	401	645	7.1	4.9
Financial activities (52-53)	6,540	7,843	8,806	1,303	964	1.8	1.2	1,525	2,230	3,038	3.9	3.1
Credit intermediation and related activities, monetary authorities, and funds, trusts, and other financial vehicles (521, 522, 525, 533)	2,414	2,819	3,126	405	308	1.6	1.0	527	794	1,114	4.2	3.4
Monetary authorities and depository credit intermediation (521, 5221)	1,793	1,761	1,873	-31	112	-2	.6	281	408	584	3.8	3.7
Nondepository credit intermediation and related support activities, funds, trusts, and lessors of nonfinancial intangible assets (except copyrighted works) (5222, 5223, 525, 533)	621	1,058	1,253	436	196	5.5	1.7	246	386	530	4.6	3.2
Nondepository credit intermediation (5222)	420	690	802	271	112	5.1	1.5	-	-	-	-	-
Activities related to credit intermediation (5223)	129	254	321	125	67	7.0	2.4	-	-	-	-	-
Funds, trusts, and other financial vehicles (525)	59	86	93	27	7	3.9	.8	-	-	-	-	-
Insurance and employee benefit funds (5251)	35	47	48	12	1	3.1	.2	-	-	-	-	-
Other investment pools and funds (5259)	24	39	45	15	6	4.9	1.5	-	-	-	-	-
Lessors of nonfinancial intangible assets (except copyrighted works) (533)	15	28	37	13	9	6.7	2.9	-	-	-	-	-
Securities, commodity contracts, and other financial investments and related activities (523)	476	801	925	325	124	5.3	1.5	97	350	526	13.6	4.2
Insurance carriers and related activities (524)	2,040	2,223	2,391	184	168	.9	.7	313	347	419	1.0	1.9
Insurance carriers (5241)	1,367	1,402	1,451	35	49	.3	.3	237	237	288	.0	2.0
Agencies, brokerages, and other insurance related activities (5242)	672	821	940	149	119	2.0	1.4	76	112	133	3.9	1.7
Real estate (531)	1,115	1,348	1,513	233	165	1.9	1.2	542	660	873	2.0	2.8
Lessors of real estate (5311)	563	605	640	43	34	.7	.6	-	-	-	-	-
Offices of real estate agents and brokers (5312)	220	299	346	79	47	3.1	1.5	-	-	-	-	-
Activities related to real estate (5313)	332	444	527	112	84	2.9	1.7	-	-	-	-	-
Rental and leasing services (532)	496	652	852	156	200	2.8	2.7	52	88	127	5.3	3.8
Automotive equipment rental and leasing (5321)	151	197	225	46	28	2.7	1.3	14	34	51	9.4	4.2
Consumer goods rental and general rental centers (5322-3)	267	353	484	86	131	2.8	3.2	15	20	27	3.2	2.7
Consumer goods rental (5322)	219	290	399	71	109	2.8	3.2	-	-	-	-	-
General rental centers (5323)	48	63	86	15	23	2.8	3.1	-	-	-	-	-
Commercial and industrial machinery and equipment rental and leasing (5324)	78	102	143	24	41	2.7	3.4	24	34	50	3.5	3.9
Professional, scientific, and technical services (54)	4,594	6,715	8,579	2,122	1,864	3.9	2.5	568	881	1,370	4.5	4.5
Legal services (5411)	950	1,112	1,330	162	218	1.6	1.8	142	151	171	.6	1.3
Accounting, tax preparation, bookkeeping, and payroll services (5412)	658	867	1,082	209	215	2.8	2.2	58	80	98	3.2	2.1
Architectural, engineering, and related services (5413)	902	1,251	1,306	349	54	3.3	.4	110	157	217	3.7	3.3

See footnotes at end of table.

Table IV-1. Employment and output by industry, 1992, 2002, and projected 2012—Continued

Industry title and North American Industry Classification System code	Employment							Output				
	Thousands of jobs			Change		Average annual rate of change		Billions of chained 1996 dollars			Average annual rate of change	
	1992	2002	2012	1992-2002	2002-2012	1992-2002	2002-2012	1992	2002	2012	1992-2002	2002-2012
Specialized design services (5414)	81	123	161	42	38	4.2	2.7	13	21	29	5.0	3.6
Computer systems design and related services (5415)	445	1,163	1,798	718	635	10.1	4.5	55	127	302	8.8	9.0
Management, scientific, and technical consulting services (5416)	358	732	1,137	374	406	7.4	4.5	59	114	169	6.7	4.1
Scientific research and development and other professional, scientific, and technical services (5417, 5419)	830	1,026	1,241	196	215	2.1	1.9	90	166	284	6.3	5.5
Scientific research and development services (5417)	490	537	573	47	36	.9	.6	-	-	-	-	-
Other professional, scientific, and technical services (5419)	340	488	668	149	179	3.7	3.2	-	-	-	-	-
Advertising and related services (5418)	370	442	525	72	84	1.8	1.7	42	67	111	4.8	5.2
Management of companies and enterprises (55)	1,623	1,711	1,906	88	195	.5	1.1	256	468	669	6.2	3.6
Administrative and support and waste management and remediation services (56)	4,753	7,584	10,391	2,831	2,807	4.8	3.2	240	433	638	6.1	4.0
Administrative support services (561)	4,516	7,267	9,987	2,751	2,720	4.9	3.2	206	384	572	6.4	4.1
Office administrative and facilities support services (5611-2)	275	390	508	116	117	3.6	2.7	27	58	87	8.1	4.2
Office administrative services (5611)	207	287	362	80	75	3.3	2.4	-	-	-	-	-
Facilities support services (5612)	68	104	146	36	42	4.3	3.5	-	-	-	-	-
Employment services (5613)	1,593	3,249	5,012	1,656	1,764	7.4	4.4	47	104	172	8.3	5.1
Business support and investigation and security services and support services, n.e.c. (5614, 5616, 5619)	1,244	1,772	2,261	528	489	3.6	2.5	64	114	165	6.0	3.7
Business support services (5614)	525	757	834	233	77	3.7	1.0	-	-	-	-	-
Investigation and security services (5616)	520	726	1,065	206	339	3.4	3.9	-	-	-	-	-
Other support services (5619)	199	289	362	90	72	3.8	2.3	-	-	-	-	-
Travel arrangement and reservation services (5615)	245	258	226	13	-32	.5	-1.3	21	25	36	1.8	3.7
Services to buildings and dwellings (5617)	1,160	1,597	1,980	438	383	3.3	2.2	47	81	109	5.5	3.1
Waste management and remediation services (562) ..	237	317	404	80	87	3.0	2.5	34	49	66	3.7	3.0
Waste collection (5621)	81	101	122	21	21	2.3	1.9	-	-	-	-	-
Waste treatment and disposal (5622)	86	120	154	34	34	3.4	2.5	-	-	-	-	-
Remediation and other waste management services (5629)	71	96	128	26	32	3.2	2.9	-	-	-	-	-
Educational services, private (61)	1,713	2,651	3,410	938	759	4.5	2.6	95	125	149	2.8	1.8
Elementary and secondary schools (6111)	467	785	866	318	81	5.3	1.0	-	-	-	-	-
Junior colleges (6112)	49	87	123	38	35	6.0	3.5	-	-	-	-	-
Colleges, universities, and professional schools (6113)	941	1,348	1,802	407	453	3.7	2.9	-	-	-	-	-
Business schools and computer and management training (6114)	57	83	115	26	32	3.8	3.3	-	-	-	-	-
Technical and trade schools (6115)	68	96	125	28	29	3.6	2.7	-	-	-	-	-
Other schools and instruction (6116)	112	203	307	91	104	6.1	4.2	-	-	-	-	-
Educational support services (6117)	20	49	74	29	25	9.4	4.2	-	-	-	-	-
Health care and social assistance (62)	10,178	13,533	17,919	3,355	4,386	2.9	2.8	719	962	1,326	3.0	3.3
Ambulatory health care services (621)	3,200	4,634	6,532	1,434	1,899	3.8	3.5	332	452	656	3.1	3.8
Offices of health practitioners (6211-3)	2,267	3,190	4,419	923	1,229	3.5	3.3	251	332	469	2.9	3.5
Offices of physicians (6211)	1,401	1,983	2,753	582	770	3.5	3.3	-	-	-	-	-
Offices of dentists (6212)	541	726	949	185	224	3.0	2.7	-	-	-	-	-
Offices of other health practitioners (6213)	326	482	717	156	235	4.0	4.1	-	-	-	-	-
Ambulatory health care services, except offices of health practitioners (6214-6, 6219)	933	1,444	2,113	511	670	4.5	3.9	82	120	188	3.9	4.6
Outpatient care centers (6214)	287	410	550	123	140	3.6	3.0	-	-	-	-	-
Medical and diagnostic laboratories (6215)	139	174	240	36	66	2.3	3.2	-	-	-	-	-
Home health care services (6216)	393	675	1,052	282	377	5.5	4.5	-	-	-	-	-
Other ambulatory health care services (6219)	114	184	272	70	88	4.9	4.0	-	-	-	-	-
Hospitals, private (622)	3,711	4,153	4,785	442	632	1.1	1.4	256	334	424	2.7	2.4

See footnotes at end of table.

Table IV-1. Employment and output by industry, 1992, 2002, and projected 2012—Continued

Industry title and North American Industry Classification System code	Employment							Output				
	Thousands of jobs			Change		Average annual rate of change		Billions of chained 1996 dollars			Average annual rate of change	
	1992	2002	2012	1992-2002	2002-2012	1992-2002	2002-2012	1992	2002	2012	1992-2002	2002-2012
General medical and surgical hospitals (6221)	3,492	3,925	4,511	433	586	1.2	1.4	-	-	-	-	-
Psychiatric and substance abuse hospitals (6222)	112	90	98	-22	8	-2.2	.9	-	-	-	-	-
Specialty (except psychiatric and substance abuse) hospitals (6223)	107	138	176	31	38	2.5	2.5	-	-	-	-	-
Nursing and residential care facilities (623)	2,044	2,743	3,685	700	942	3.0	3.0	71	88	114	2.1	2.6
Nursing care and residential mental health facilities (6231-2)	1,578	2,048	2,607	470	559	2.6	2.4	56	65	82	1.5	2.4
Nursing care facilities (6231)	1,273	1,574	1,925	300	351	2.1	2.0	-	-	-	-	-
Residential mental retardation, mental health and substance abuse facilities (6232)	305	474	682	169	208	4.5	3.7	-	-	-	-	-
Community care facilities for the elderly and residential care facilities, n.e.c. (6233, 6239) ..	465	695	1,078	230	382	4.1	4.5	16	23	33	4.2	3.4
Community care facilities for the elderly (6233) ..	364	530	815	167	285	3.8	4.4	-	-	-	-	-
Other residential care facilities (6239)	102	165	262	64	97	5.0	4.7	-	-	-	-	-
Social assistance (624)	1,223	2,004	2,917	780	913	5.1	3.8	59	88	132	4.1	4.1
Individual, family, community, and vocational rehabilitation services (6241-3)	777	1,269	1,867	493	597	5.0	3.9	34	52	78	4.2	4.1
Individual and family services (6241)	442	767	1,117	326	350	5.7	3.8	-	-	-	-	-
Community food and housing, and emergency and other relief services (6242)	76	126	187	50	62	5.2	4.1	-	-	-	-	-
Vocational rehabilitation services (6243)	259	376	563	117	186	3.8	4.1	-	-	-	-	-
Child day care services (6244)	447	734	1,050	288	316	5.1	3.6	24	37	55	4.3	4.0
Arts, entertainment, and recreation (71)	1,236	1,778	2,275	542	497	3.7	2.5	95	143	200	4.2	3.4
Performing arts, spectator sports, and related industries (711)	290	358	421	68	63	2.1	1.6	41	53	65	2.4	2.2
Performing arts companies, promoters, agents, managers and independent artists (7111, 7113-5)	195	240	277	45	37	2.1	1.4	27	34	43	2.4	2.3
Spectator sports (7112)	95	118	144	23	26	2.2	2.0	15	19	22	2.3	1.9
Museums, historical sites, and similar institutions (712)	75	113	136	38	24	4.1	1.9	4	7	9	5.9	2.7
Amusement, gambling, and recreation industries (713)	872	1,308	1,717	436	410	4.1	2.8	49	83	126	5.5	4.2
Amusement parks and arcades (7131)	122	154	197	32	44	2.3	2.5	-	-	-	-	-
Gambling industries (7132)	46	137	179	91	42	11.6	2.7	-	-	-	-	-
Other amusement and recreation industries (7139)	704	1,017	1,341	313	324	3.7	2.8	-	-	-	-	-
Accommodation and food services (72)	8,201	10,191	11,829	1,991	1,638	2.2	1.5	347	449	597	2.6	2.9
Accommodation (721)	1,562	1,780	2,080	218	301	1.3	1.6	90	116	173	2.5	4.1
Traveler accommodation (7211)	1,517	1,726	2,019	209	293	1.3	1.6	88	113	169	2.5	4.1
RV parks, recreational camps, and rooming and boarding houses (7212-3)	44	53	62	9	8	1.9	1.5	2	3	4	2.1	3.2
Food services and drinking places (722)	6,639	8,412	9,749	1,773	1,337	2.4	1.5	256	333	423	2.7	2.4
Full-service restaurants (7221)	3,117	3,990	4,631	873	641	2.5	1.5	-	-	-	-	-
Limited-service eating places (7222)	2,807	3,528	4,046	721	518	2.3	1.4	-	-	-	-	-
Special food services (7223)	398	507	634	109	127	2.5	2.3	-	-	-	-	-
Drinking places (alcoholic beverages) (7224)	317	387	439	70	52	2.0	1.3	-	-	-	-	-
Other services (81)	5,120	6,105	7,065	985	960	1.8	1.5	298	382	506	2.5	2.9
Repair and maintenance (811)	964	1,241	1,418	277	177	2.6	1.3	118	158	205	2.9	2.7
Automotive repair and maintenance (8111)	636	897	1,046	261	149	3.5	1.6	69	93	124	3.1	2.9
Electronic and precision equipment repair and maintenance (8112)	99	105	101	7	-5	.6	-5	17	17	18	.5	.2
Commercial and industrial equipment (except automotive and electronic) repair and maintenance (8113)	149	156	185	8	29	.5	1.7	16	28	42	5.4	4.1
Personal and household goods repair and maintenance (8114)	80	82	86	2	3	.2	.4	17	20	22	2.0	.7
Personal and laundry services (812)	1,099	1,247	1,485	148	238	1.3	1.8	76	98	125	2.6	2.4
Personal care services (8121)	434	523	667	89	144	1.9	2.5	20	27	35	2.8	2.6
Death care services (8122)	116	139	155	22	16	1.8	1.1	12	12	13	.5	.8

See footnotes at end of table.

Table IV-1. Employment and output by industry, 1992, 2002, and projected 2012—Continued

Industry title and North American Industry Classification System code	Employment							Output				
	Thousands of jobs			Change		Average annual rate of change		Billions of chained 1996 dollars			Average annual rate of change	
	1992	2002	2012	1992-2002	2002-2012	1992-2002	2002-2012	1992	2002	2012	1992-2002	2002-2012
Drycleaning and laundry services (8123)	359	366	393	7	27	0.2	0.7	18	21	25	1.5	1.7
Other personal services (8129)	190	219	270	29	51	1.4	2.1	26	38	53	4.0	3.3
Religious, grantmaking, civic, professional, and similar organizations (813)	2,177	2,861	3,460	684	600	2.8	1.9	94	117	166	2.2	3.6
Religious, grantmaking and giving services, and social advocacy organizations (8131-3)	1,403	1,944	2,372	541	428	3.3	2.0	49	66	107	3.1	4.9
Religious organizations (8131)	1,151	1,643	2,044	493	401	3.6	2.2	-	-	-	-	-
Grantmaking and giving services (8132)	121	129	122	8	-7	.6	-.5	-	-	-	-	-
Social advocacy organizations (8133)	132	172	206	40	34	2.7	1.8	-	-	-	-	-
Civic, social, business, and similar organizations (8134, 8139)	774	917	1,088	143	172	1.7	1.7	45	50	59	1.2	1.5
Civic and social organizations (8134)	381	414	468	33	54	.8	1.2	-	-	-	-	-
Business, professional, labor, political, and similar organizations (8139)	393	503	621	110	118	2.5	2.1	-	-	-	-	-
Private households (814)	880	757	703	-123	-54	-1.5	-.7	10	9	11	-.8	1.1
Federal Government	3,111	2,767	2,779	-344	12	-1.2	.0	394	378	443	-.4	1.6
Postal Service (491)	800	845	807	45	-38	.5	-.5	51	61	76	1.7	2.2
Federal electric utilities	28	28	24	1	-4	.2	-1.7	7	9	11	2.5	2.0
Federal Government enterprises, n.e.c.	138	52	32	-86	-20	-9.3	-4.6	6	7	11	1.4	4.1
Federal general government	2,145	1,842	1,915	-303	73	-1.5	.4	252	209	216	-1.9	.4
Federal Government capital services	-	-	-	-	-	-	-	78	93	133	1.7	3.7
State and local government	15,675	18,722	21,240	3,047	2,518	1.8	1.3	685	839	980	2.0	1.6
Local government passenger transit	210	231	260	21	29	1.0	1.2	7	9	10	2.6	.4
State and local electric utilities	85	93	108	9	14	1.0	1.4	18	24	29	2.5	2.2
State and local government enterprises	532	689	734	157	46	2.6	.6	78	104	131	2.9	2.4
State and local government hospitals	1,083	995	1,024	-89	29	-.9	.3	41	48	56	1.5	1.5
State and local government education	7,875	9,876	11,606	2,002	1,730	2.3	1.6	276	321	375	1.5	1.5
State and local general government, n.e.c.	5,890	6,838	7,508	948	670	1.5	.9	207	241	260	1.5	.8
State and local government capital services	-	-	-	-	-	-	-	58	93	122	4.9	2.8
Owner-occupied dwellings	-	-	-	-	-	-	-	552	710	907	2.6	2.5
Agriculture (11)¹	2,639	2,245	1,905	-394	-340	-1.6	-1.6	274	300	352	.9	1.6
Agricultural products (111, 112)	2,318	1,955	1,632	-362	-324	-1.7	-1.8	221	246	286	1.1	1.5
Forestry, fishing, hunting, and trapping (113-2, 114)	96	68	50	-28	-17	-3.4	-2.9	12	12	14	-.4	1.7
Logging (1133)	120	98	90	-23	-7	-2.1	-.8	29	31	36	.8	1.4
Support activities for agriculture and forestry (115)	105	124	133	19	9	1.6	.7	11	11	16	-.3	3.4
Nonagriculture self-employed and unpaid family workers²	9,009	9,018	9,162	10	144	.0	.2	-	-	-	-	-
Secondary wage and salary jobs in agricultural production, forestry, fishing, and private household industries³	178	143	128	-35	-15	-2.2	-1.1	-	-	-	-	-
Secondary jobs as a self-employed or unpaid family worker⁴	1,973	1,545	1,434	-428	-111	-2.4	-.7	-	-	-	-	-
Total^{5,6}	123,325	144,014	165,319	20,689	21,305	1.6	1.4	12,272	16,822	23,250	3.2	3.3

¹ Includes agriculture, forestry, fishing, and hunting data from the Current Population Survey, except logging, which is from the Current Employment Statistics survey and government wage and salary workers, who are excluded.

² Comparable estimate of output growth is not available.

³ Workers who hold a secondary wage and salary job in agricultural production, forestry, fishing, and private household industries.

⁴ Wage and salary workers who hold a secondary job as a self-employed or unpaid family worker.

⁵ Wage and salary data are from the Current Employment Statistics survey, which counts jobs, whereas self-employed, unpaid family workers, and agriculture, forestry, fishing, and hunting employment are from the Current Population Survey, which counts workers.

⁶ Output subcategories do not necessarily add to higher categories as a byproduct of chainweighting.

NOTE: Dash indicates data not available. n.e.c. = not elsewhere classified. Due to rounding, detailed employment and output may not add to totals.

Table IV-2. Factors affecting industry output and employment, 2002-12

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
111,112	Agricultural products	Output, which is purchased primarily by the food industries and consumers, will grow slowly. Productivity will exhibit fast growth from improved farm equipment. Employment, especially of self-employed farmers, will contract as concentration leads to further declines in the number of family farms.
1131-2, 114	Forestry, fishing, hunting, and trapping	Output is consumed by the logging and food industries and will grow slowly as imports increase. Healthy productivity growth results in declining employment.
1133	Logging	Output will increase slowly due to its dependence on the slow-growing pulp-and-paper-processing and veneer and plywood industries. Productivity will grow with increased mechanization, resulting in declining employment.
115	Support activities for agriculture and forestry	Output is sold mainly as an input into the livestock and agriculture industries and will grow slightly faster than GDP. Because productivity is projected to increase rapidly, employment will grow slowly.
211	Oil and gas extraction	Output is entirely consumed as an input to the petroleum-refining and gas utilities industries, which will rely more on imports. Output is expected to decline slightly due to fluctuations in oil and gas prices, strict environmental regulations, limited access to Federal lands, and foreign competition. Productivity will increase due to continued technological advances in drilling and exploration techniques. Taken together, declining output and rising productivity will result in employment losses as domestic companies shift to foreign exploration and production. Industry consolidation, along with outsourcing to specialized firms for key operations such as exploration, will also limit employment growth.
2121	Coal mining	Although coal generates about half of the country's electricity and is used as an input to primary steel products, output is projected to decline as strict environmental regulations increase compliance costs. Employment declines are expected due to industry consolidation, international competition, and advances in productivity through improved mining technology and automation.
2122	Metal ore mining	Output growth will be constrained as international competition reduces demand from the primary nonferrous metals, steel, industrial chemicals, and nonresidential construction industries. Employment will decline due to industry consolidation and advances in productivity through improved mining technology and automation.
2123	Nonmetallic mineral mining and quarrying	Output depends on demand from the concrete products, residential construction, and agricultural chemicals industries and is projected to decline slightly. Employment is expected to show marginal growth, as productivity declines faster than output.
213	Support activities for mining	Output is measured primarily as the value of new oil and gas well exploration and drilling and is mostly consumed as an input into the oil and gas extraction industry. Output is expected to grow slowly and productivity is expected to grow even more slowly, resulting in a slight increase in employment.
2211	Electric power generation, transmission, and distribution	Output is consumed by individuals and as an input to many industries and is expected to increase as the demand for electricity increases with population and GDP growth. Rising productivity will cause employment to decline.
2212	Natural gas distribution	Output is consumed by individuals and as an input to many industries and will rise slowly in response to those sources of demand. Productivity gains will outpace output growth and, along with industry deregulation and restructuring, will lead to declining employment.
2213	Water, sewage, and other systems	Output is consumed mainly by individuals, but also as an input to many industries, and is expected to increase as population growth in rural areas increases the demand for water and sanitation services. Productivity will continue to decline, generating strong employment growth.
23	Construction	This industry is engaged in new construction of residential and nonresidential buildings and infrastructure such as highways, bridges, sewers, and railroads, as well as in maintenance and repair construction. Output is projected to increase due to population growth, the replacement or remodeling of industrial plants, and greater demand for nursing, extended-care, and other medical treatment facilities for an aging population. Employment will grow slightly more slowly than output, due to slow productivity growth.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
3111	Animal food manufacturing	Output is consumed as an input by the livestock and food-processing industries, by the food services and drinking places sector, and by individuals. Output will increase more slowly than GDP. Because productivity will grow almost as fast as output, employment will show no increase.
3112	Grain and oilseed milling	Output is consumed as an input by the livestock and food-processing industries and by individuals, and output also is exported. Output will grow more slowly than GDP. Because productivity will rise as fast as output, there will be no growth in employment.
3113	Sugar and confectionary product manufacturing	Output is consumed by individuals and as an input into the food-processing industries. Output will increase at half the rate of GDP. Rising productivity, caused by new plants and equipment, will result in no employment growth.
3114	Fruit and vegetable preserving and specialty food manufacturing	Output is consumed mainly by individuals, but also as an input into food services and drinking places. Output and productivity will grow slowly, at about the same rate, resulting in no growth in employment.
3115	Dairy product manufacturing	Output is consumed equally by individuals and as an intermediate input, the latter mainly by food services and drinking places. Output will show slight growth, but because new plants and equipment—combined with improved methods for processing milk products—will raise productivity, employment will decline.
3116	Animal slaughtering and processing	Output is consumed by individuals and as an intermediate input to food services and drinking places. Output will increase more slowly than GDP. Because productivity will grow yet more slowly—despite technological advances such as safety-enhancing packaging, which extends the shelf life of meat, and automated packaging, which reduces human error and contamination—employment will continue to rise.
3117	Seafood product preparation and packaging	Output is consumed mainly as an input into the food services and drinking places industry and by individuals. Output will show little growth as imports hold steady. Healthy productivity growth will result in a slight decline in employment.
3118	Bakeries and tortilla manufacturing	Output, consumed mainly by individuals and as an intermediate input by food services and drinking places, will increase more slowly than GDP. Because productivity will grow almost as fast as output, there will be only a slight increase in employment.
3119	Other food manufacturing	Output is demanded mainly by individuals, but also as an input into the food services and drinking places and food-processing industries. Output will grow at half the rate of GDP. Productivity's growth will almost match that of output, so employment growth will be minimal.
3121	Beverage manufacturing	Output is demanded by individuals and as an input into food services and drinking places. Output will grow more slowly than GDP. Productivity will grow more quickly than output, due to the automation of filling and packaging tasks. Therefore, employment in this capital-intensive industry will decline.
3122	Tobacco manufacturing	Output is consumed by individuals, serves as an input to other firms in the industry, and is exported. Output will continue to stagnate as an increasing population balances the negative effects of rising prices and changing attitudes against domestic consumption. Because healthy productivity growth is expected, employment will fall.
3131	Fiber, yarn, and thread mills	Output is purchased almost entirely by the apparel and textile industries, whose employment is expected to decline. In addition, imports will grow, causing output to continue to decline. Healthy productivity growth from faster looms, automated inspection machines, and further consolidation among textile producers will result in a continued plunge in employment.
3132	Fabric mills	Output is purchased almost entirely by the apparel and textile industries, whose employment is expected to decline. In addition, imports will grow, causing output to continue to decline. Healthy productivity growth from faster looms, automated inspection machines, and further consolidation among textile producers will result in a continued plunge in employment.
3133	Textile and fabric finishing and fabric coating mills	Output is purchased almost entirely by the apparel and textile industries, whose employment is expected to decline. In addition, imports will grow, causing output to continue to decline. Moderate productivity growth from faster looms, automated inspection machines, and further consolidation among textile producers will result in a continued plunge in employment.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
3141	Textile furnishings mills	Output is consumed mainly by individuals, with imports satisfying half of demand. Output is projected to grow at a third the rate of GDP, with productivity growing at almost twice the rate of output. The combination will result in a continued decline in employment.
3149	Other textile product mills	Output is projected to be split almost evenly between demand by individuals and demand by intermediate industries, while imports are expected to rapidly increase their share. This combination results in projected output growing more slowly than GDP. Because productivity is anticipated to grow faster than output, employment is projected to decline.
3151	Apparel knitting mills	Output is purchased by individuals and is used as an intermediate input by the apparel industry. Continued competition from abroad and foreign outsourcing will result in output rapidly declining. Employment will continue to decline in approximate step with output.
3152	Cut and sew apparel manufacturing	Output is consumed almost entirely by individuals and is projected to decline considerably. Imports are projected to grow twice as fast as GDP and will go from satisfying 65 percent of demand in 2002 to meeting almost all demand in 2012. Combined with projected healthy productivity growth, the increase in imports will result in employment declining to a quarter of its 2002 level.
3159	Apparel accessories and other apparel manufacturing	Output is consumed almost entirely by individuals and is projected to decline. Imports are projected to grow more than twice as fast as GDP and will go from satisfying 50 percent of demand in 2002 to meeting almost all demand in 2012. Combined with projected healthy productivity growth, the increase in imports will result in employment declining to half its 2002 level.
3161	Leather and hide tanning and finishing	Demand for output is almost entirely as an input for further processing, with a minor amount exported. Imports are projected to satisfy 60 percent of demand. Although productivity is expected to decline, employment is still projected to drop significantly.
3162	Footwear manufacturing	Output is sold almost entirely to individuals and is projected to grow more slowly than GDP. Imports are projected to satisfy almost 90 percent of demand. Productivity is anticipated to grow at more than twice the rate of output, so employment will continue to decline.
3169	Other leather and allied products manufacturing	Demand is split 90 percent to 10 percent between individuals and input sales, with imports satisfying 95 percent of output. Although productivity is projected to decline, employment will also decline.
3211	Sawmills and wood preservation	Output is purchased 95 percent as an input for new single-unit housing construction, other wood-processing industries, and the maintenance and repair industries, with the other 5 percent exported. Imports are projected to satisfy 25 percent of demand, still leaving output to grow almost as fast as GDP. Because productivity is projected to grow even faster, employment is expected to decline.
3212	Veneer, plywood, and engineered wood product manufacturing	Output is consumed primarily as an input to the residential construction and wood-processing industries, which will grow due to rising demand from an expanding population and increasing new-housing starts. Rising productivity and imports will result in average employment growth.
3219	Other wood product manufacturing	Output is purchased as an input into the construction industry and is projected to grow faster than GDP. Productivity is expected to grow at less than half the rate of GDP, so employment will increase.
3221	Pulp, paper, and paperboard mills	Output is sold 10 percent to consumers, 15 percent as an export, and the rest as an input; imports are projected to satisfy 25 percent of output. As the economy becomes more digital, less printed material will be produced, so output is projected to decline. Combined with healthy growth in productivity, employment is anticipated to decline by a quarter.
3222	Converted paper product manufacturing	Output is split 30 percent to individuals and 70 percent to inputs, especially into the trade industries. With slow growth in demand and projected faster growth in productivity, employment is expected to continue to decline.
323	Printing and related support activities	Output is directed mainly to the commercial printing, publishing, and advertising industries and will stagnate as services industries are replaced with in-house operations. Productivity and employment are also expected to show little or no growth.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
324	Petroleum and coal products manufacturing	Output is consumed by individuals and by the electric utilities and transportation industries. Output will increase at a third the rate of GDP, due to continued demand from motor vehicle users, as well as demand for kerosene and fuel oils. Advancing technology will cause productivity to increase faster than average, so employment will decline. Imports are projected to grow to twice the level of exports, contributing to the drop in employment.
3251	Basic chemical manufacturing	Output is mainly an intermediate input to the chemical, plastics, and petroleum-refining industries, in all of which demand will decline. Further, imports are projected to increase as the inorganic chemicals industry loses jobs to firms in Latin America and Asia, resulting in declining output. Although productivity is expected to decline slightly, employment will nevertheless decline.
3252	Resin, synthetic rubber, and artificial fibers and filaments manufacturing	Output is exported and is consumed by the construction, motor vehicles, goods-packaging, and textiles industries. None of these sources of demand is projected to show significant growth. Growing imports will result in slight declines in output, which, together with healthy growth in productivity, will lead to a sharp drop in employment.
3253	Pesticide, fertilizer, and other agricultural chemical manufacturing	Output is consumed mainly as an input by the agricultural industries and will grow at two-thirds the rate of GDP. This industry will produce more for export to Latin America and Asia, as developing nations advance in their agricultural methods. Because export demand is exactly matched by import growth, growth in intermediate demand will drive output. Productivity is projected to grow twice as fast as the average, resulting in a decline in employment.
3254	Pharmaceutical and medicine manufacturing	Output is consumed by individuals and the medical services industries and will grow slightly faster than GDP, due to a growing and aging population. Productivity will grow less than half as fast, resulting in employment gains. Sustained demand for lifestyle drugs and other promising new drugs should further stimulate employment.
3255	Paint, coating, and adhesive manufacturing	Output is consumed almost entirely as an intermediate input by the construction, motor vehicle, and other manufacturing industries with minimal imports and exports. Output is projected to grow at two-thirds the rate of GDP, while productivity is anticipated to grow twice as fast as the average. Together, the two trends are projected to lead to a drop in employment.
3256	Soap, cleaning compound, and toilet preparation manufacturing	Output is driven by consumer demand, with little impact from trade. Output will increase due to a growing and aging population, coupled with a rising standard of living. Productivity will increase, but at a slightly slower rate than output, resulting in minimal employment growth.
3259	Other chemical product and preparation manufacturing	Output is consumed primarily as an intermediate input to various manufacturing and construction industries, and no growth is projected to stem from these sectors. Growth in consumer demand will therefore be the catalyst behind an expected growth in output. The production process will change as environmental concerns increase efforts to produce more environmentally friendly substances to replace current adhesives, sealants, and printing inks. A healthy productivity growth rate of almost 3 times as fast as the average, coupled with little growth in output, will result in rapidly declining employment.
3261	Plastics product manufacturing	Output is used mainly as an intermediate input by a wide variety of industries and will increase due to growing demand for plastic products and the continuing substitution of plastic for other materials in production. Productivity will increase with the adaptation of labor-saving, computer-controlled automation, but at a slower rate than output, resulting in increases in employment.
3262	Rubber product manufacturing	Output is consumed as an intermediate input to the construction, motor vehicles, goods-packaging, and textiles industries and will increase as these industries grow. Rising imports and productivity will result in little growth in employment.
3271	Clay product and refractory manufacturing	Output continues to increase in response to demand for these products by many manufacturing industries and as an input to the construction industry. Productivity and imports are both expected to continue to increase, contributing to slower-than-average growth in employment.
3272	Glass and glass product manufacturing	Output is consumed almost entirely as an input by manufacturing industries. Output will show healthy growth, but because productivity is projected to grow at about the same rate, employment is expected to remain essentially unchanged.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
3273	Cement and concrete product manufacturing	Output will increase because construction, which is projected to rise, buys virtually all of the intermediate output. Productivity is projected to increase more slowly than output, leading to employment growth.
3274	Lime and gypsum product manufacturing	Because this industry's products are used by virtually every sector of the growing construction industry, output will increase. Productivity will continue to increase at almost the same rate as output. Employment will grow slower than the average.
3279	Other nonmetallic mineral product manufacturing	Output continues to increase in response to demand for these products by many manufacturing industries and as an input to the construction industry. Productivity will grow at about the same rate as output, but because average hours worked in this industry are projected to decline, employment will show some growth.
3311	Iron and steel mills and ferroalloy manufacturing	Output is overwhelmingly purchased as an intermediate input by industries such as automotive stampings and industrial machinery. Imports are expected to satisfy half of the projected growth, resulting in output growing at less than half the rate of GDP. Productivity, by contrast, is projected to grow more than 3 times as fast as output, leading to a rapid drop in employment.
3312	Steel product manufacturing from purchased steel	Output is overwhelmingly purchased as an intermediate input to other industries, such as automotive stampings and industrial machinery, but because imports will satisfy most of the increase, output will grow slowly. Productivity will increase slightly faster than output, so employment will decline slightly.
3313	Alumina and aluminum production and processing	Output is exported and is an intermediate commodity to metalworking machinery, motor vehicle parts, and other manufacturing industries. Intermediate demand is projected to decline slightly, while exports grow faster than imports, thus supplying the source of marginal output growth. Productivity growth will equal output growth, resulting in a slight decline in employment.
3314	Nonferrous metal (except aluminum) production and processing	Output growth depends on exports and intermediate demand in the jewelry, silverware, and lighter weight copper and aluminum industrial products industries. Imports are projected to grow faster than the domestic output drivers, resulting in a slight decline in output. Productivity also is expected to decline, but average hours worked will increase, so employment will show only a minor drop.
3315	Foundries	Output will grow from continued intermediate demand in the rail, motor vehicles, and heavy construction industries, as well as from overall growth in the economy, but will be limited as motor vehicle manufacturers use other materials, such as lightweight alloys and plastics, in production. Productivity continues to make healthy gains from improved technology, but because output is projected to grow faster, employment will rise.
3321	Forging and stamping	Output is purchased mainly by the construction, utilities, and oil and gas extraction industries. Demand for many of the fabricated products produced by these industries will increase as the industries expand. Output in this industry is projected to grow faster than GDP, whereas productivity will grow relatively more slowly, resulting in average employment growth.
3322	Cutlery and handtool manufacturing	Output is distributed in approximately equal amounts across consumers, other industries (principally the motor vehicle industry), and imports. Because projected imports cancel out intermediate demand, as it did in 2002, output, determined by consumers, will grow slightly faster than GDP. Productivity will grow more slowly than output, so employment will rise.
3323	Architectural and structural metals manufacturing	Output is consumed mainly as an input to construction and as an investment purchase by electric utilities and is projected to grow slightly faster than GDP. Productivity is projected to grow at the average rate, so employment will increase.
3324	Boiler, tank, and shipping container manufacturing	Output is consumed as an intermediate input to the beverage, food, soap, paint, and petroleum product industries and will increase as these industries grow, although a trend toward plastic bottles will cut production of metal cans. Shipping containers will be in demand for shipping an increasing number of goods. Imports and exports will cancel each other out. Productivity is projected to grow faster than output, so employment will drop.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
3325	Hardware manufacturing	Output is purchased mainly as an input by other industries, especially construction. Output is projected to grow faster than GDP, while productivity is expected to grow more slowly than output. Hence, employment will rise.
3326	Spring and wire product manufacturing	Output is purchased as an input to a variety of industries, principally the construction and motor vehicle industries. Demand from these sources is projected to decline. Imports are expected to increase, but because secondary products are produced in significant quantities, output will show an increase. Productivity will grow faster than average, thereby causing employment to decline.
3327	Machine shops; turned product; and screw, nut, and bolt manufacturing	Output is purchased mainly by motor vehicle manufacturers and repairers, aircraft producers, and other industrial manufacturers. Output is projected to grow faster than GDP, but productivity also is projected to exhibit healthy growth. Taken together, these trends indicate little growth for employment.
3328	Coating, engraving, heat treating, and allied activities	Output is entirely bought by a variety of other industries for use in their production processes. Output is projected to grow at a faster rate than GDP, but employment will show little change, because productivity also is projected to post strong growth.
3329	Other fabricated metal product manufacturing	Output is divided predominantly across exports, intermediate demand, and imports. Growth in intermediate demand will stem from nonelectric heating equipment, which is primarily an input to the construction industry, but will decline overall because electric heating competes with nonelectric heating. Output will grow at a third the rate of GDP, due to healthy export growth. Productivity is projected to grow slightly faster than output, so employment is expected to decline.
3331	Agriculture, construction, and mining machinery manufacturing	Output is purchased primarily as investment by the construction, petroleum, coal mining, and various manufacturing industries and will increase as the majority of these industries grow. This cyclical industry is affected by housing starts and consumer confidence. Increasing intermediate demand, such as that arising from expenditures made in search of new energy supplies, will increase employment. However, healthy productivity gains will limit this growth.
3332	Industrial machinery manufacturing	Output is driven by investment demand and trade. Imports will remain greater than exports, and the net will satisfy 15 percent of investment. Output still will grow faster than GDP. Because productivity will grow at a slightly faster rate than output, employment will show a minor drop.
3333	Commercial and service industry machinery manufacturing	Output is demanded by a plethora of GDP components and will grow slightly faster than GDP. Productivity will grow more slowly, resulting in employment growth.
3334	Ventilation, heating, air-conditioning and commercial refrigeration equipment manufacturing	Demand for output is spread over a wide variety of areas, but is located mainly in investment and is an input to the motor vehicle and construction industries. Output is projected to grow faster than GDP, while productivity will grow more slowly, with the difference showing up as employment growth.
3335	Metalworking machinery manufacturing	Output is consumed as investment by the motor vehicle and construction industries, and 20 percent is satisfied by imports. Output will increase 50 percent faster than GDP. Productivity also will grow at a fast pace, but more slowly than output, so employment will increase.
3336	Engine, turbine, and power transmission equipment manufacturing	Output demand is heavily weighted to intermediate demand and foreign trade, with imports and exports basically canceling each other out. Output and productivity will increase more slowly than GDP; therefore, employment will remain constant.
3339	Other general purpose machinery manufacturing	Output is demanded by the investment, intermediate, and trade areas, with imports and exports canceling their individual impacts. Intermediate demand is projected to grow more than twice as fast as GDP, while investment will grow a third faster, leading to healthy output growth. Although productivity also is projected to grow, it will grow more slowly than output. Employment will therefore increase.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
3341	Computer and peripheral equipment manufacturing	Output is projected to keep up its extraordinary growth in real terms as computers continue to improve in quality. Because almost all the real growth is due to this increase in quality, a perceived growth in productivity follows, and employment actually will decline.
3342	Communications equipment manufacturing	Output is generated by demand from the investment, intermediate, and trade areas, with projected imports and exports canceling each other out. Broadband will be a significant factor in the next few years as growing numbers of Internet users demand higher speeds and greater connectivity to take advantage of various applications. Output will increase as firms continue to make major investments in technology by purchasing communications equipment. Popular applications (e-mail, Internet, messaging) will be increasingly capable of being run on wireless, hand-held devices. Output is projected to grow more than 3 times as fast as GDP, with productivity doing only slightly less well. Employment, therefore, will show little growth.
3343	Audio and video equipment manufacturing	Output will show little growth as healthy growth in consumer demand is more than matched by increases in imports. Productivity will increase faster than domestic demand, so employment will decline.
3344	Semiconductor and other electronic component manufacturing	Output is split into three equal segments: exports, imports, and intermediate demand. Trade cancels itself out, leaving growth dependent on sales to other industries, which are projected to grow very little. Electronic components and accessories are needed in cars, computers, cell phones, and cable modems. Because productivity is projected to grow more than twice as fast as output, employment will drop.
3345	Navigational, measuring, electromedical, and control instruments manufacturing	Output is used by the defense, aerospace, ship, and transportation industries. More satellites and greater accessibility to global positioning system signals will spur growth in ground-based navigation systems and thus increase output. Technology-driven productivity increases will result in declining employment. Some output is consumed by individuals, with the balance used as an investment or intermediate input by hospitals and other medical services. Output will continue to grow as an aging population requires additional medical care and seeks treatments using the latest technology. Productivity will increase faster than output, resulting in declining employment.
3346	Manufacturing and reproducing magnetic and optical media	Output consists of the production of blank audio- and videotapes and diskettes, as well as the copying of audio, software, and other data on magnetic, optical, and similar media. Imports will balance the demand from consumers and exports, so growth will depend on intermediate demand, which is expected to grow at two-thirds the rate of GDP. Productivity is projected to grow at less than half the rate of output, resulting in employment growth.
3351	Electric lighting equipment manufacturing	Output is purchased by individuals and as inputs into the construction, motor vehicle, and other industries. Imports equal all but intermediate sales, thereby driving growth. Output is projected to grow at half the rate of GDP, with productivity anticipated to grow slightly faster, resulting in a small drop in employment.
3352	Household appliance manufacturing	Output is purchased mainly by consumers, with imports projected to supply an increasing share as the significance of U.S.-based firms diminishes because of the large penetration of imports from Japan and other Asian countries. This relatively slow growth in output is matched with a healthy growth in productivity, so employment will decline.
3353	Electrical equipment manufacturing	Output is purchased for investment, for exports, and as intermediate inputs. Because imports are projected to equal the sum of investment and exports, output growth depends on growth of intermediate demand, which is expected to grow faster than GDP. Productivity is projected to grow slightly slower, so employment will rise.
3359	Other electrical equipment and component manufacturing	Output is purchased by consumers, for investment, for exports, and as inputs by other industries. Imports satisfy almost a third of demand, while intermediate inputs account for half of total demand. Output growth is projected to be slightly slower than that of GDP, productivity growth slightly slower still. Average hours are projected to increase such that, in combination with the increase in productivity, employment will decline slightly.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
3361	Motor vehicle manufacturing Motor vehicle manufacturing—continued	Output is purchased by consumers and as investment. Half of demand is satisfied by imports. Projected growth in investment is higher than projected growth in imports, so output will increase at a rate equal to that of GDP. Output growth will be limited due to an anticipated slowdown in the growth of the driving-age population, competition from foreign producers, improvements in vehicle quality that extend longevity, and safety and environmental regulations that increase production costs. Productivity will increase faster than output—due to technologies such as robotics, computers, and factory automation—resulting in declining employment.
3362	Motor vehicle body and trailer manufacturing	Output, which is purchased by individuals and for investment, will grow, because consumer demand is projected to increase at one-and-one-half times the rate of GDP, with investment increasing at twice the rate. Productivity is expected to grow more slowly than output, so employment will increase.
3363	Motor vehicle parts manufacturing	Output is consumed as an input into the motor vehicle industry, of which imports satisfy almost a quarter of demand. Output is projected to grow at a faster rate than GDP, while productivity is expected to grow more slowly, thereby creating some employment growth.
3364	Aerospace product and parts manufacturing	Output is purchased by defense, is exported, or is used as an input to aircraft and missiles. A growing international aircraft industry will cause imports to rise faster than domestic demand, so output will stagnate. Combined with increasing productivity, flat output growth will lead to a drop in employment.
3365	Railroad rolling stock manufacturing	Output is consumed as an investment or as an intermediate input by the rail transportation industry. As the industry improves its tracks and equipment to accommodate the increased demand for freight and passenger rail transportation, output will increase. Productivity will increase due to technological advances, but more slowly than output growth; employment will increase slightly.
3366	Ship and boat building	Output is consumed by the military, by individuals, and as capital investment by the water transport and energy industries. Rebounding prices for oil and natural gas will spur demand. In addition, the Oil Pollution Act of 1990, under which all tankers and tank barges must be converted to double hulls by 2015, means that many vessels will need to be refitted. Output will increase faster than productivity, resulting in slightly increasing employment.
3369	Other transportation equipment manufacturing	The industry is engaged primarily in manufacturing transportation equipment, with the output purchased chiefly by individuals, as well as by the military. Some is exported. Output will increase as demand for pleasure vehicles continues to grow. Automation will continue to prompt growth in productivity almost as rapid as the growth of output, resulting in only a slight increase in employment.
3371	Household and institutional furniture and kitchen cabinet manufacturing	Output is consumed mostly by individuals and the construction industry as an intermediate demand. Output will rise faster than productivity, resulting in an increase in employment.
3391	Medical equipment and supplies manufacturing	Some output is consumed by individuals, with the balance used as an investment or intermediate input by hospitals and other medical services. Output will continue to grow as an aging population requires additional medical care and seeks treatments using the latest technology. Productivity will continue to grow, but at a slower pace than output, and imports are expected to increase. Employment will rise slightly as a result.
42	Wholesale trade	Output is consumed as a trade margin on goods being sold at various stages of production and will continue to increase. Growth will vary, depending on the economic sector involved. The spread of new technology, such as electronic commerce, and consolidation of the industry due to globalization and cost pressures will be the main influences on employment. Productivity growth will be outpaced by output growth, resulting in increasing employment.
44-45	Retail trade	Although demand fluctuates with the business cycle, output is consumed as a trade margin on goods sold to individuals and will increase with population and GDP growth. Productivity will increase due to gains in technology and mergers, but at a slower pace than output. As a result, employment is expected to grow.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
481	Air transportation	Output is consumed by individuals, by business travelers, and as a transportation margin on shipping goods to market. Despite a recent slowdown in passenger air travel, output will grow in the United States and abroad over the next decade for both leisure and business travel as the population and GDP increase. Cargo traffic is expected to increase with the economy and growing world trade. Cargo traffic also should be stimulated by the development of global electronic commerce and manufacturing trends such as just-in-time delivery, which require more materials to be shipped rapidly. Productivity will continue to rise, but at a slower rate than output, resulting in employment growth.
482	Rail transportation	Output is consumed by individuals and as a transportation and export margin on virtually all manufactured products. Demand for railroad freight service will grow as the economy expands and intermodal systems that use trucks to pick up and deliver shippers' sealed trailers or containers and that utilize trains to transport them long distance come into greater use. Productivity gains will be affected by innovations such as larger, faster, more fuel efficient trains and computerized classification yards; computerized tracking of freight cars to match empty cars with the closest loads; and computer-assisted dispatching of trains. Computer-assisted devices alert engineers to train malfunctions. Work rules now allow trains to operate with two-person crews. Productivity will exceed output growth and will cause employment to decline still further. Employment in most rail occupations will continue to decline, due in part to the consolidation of railroads and job duties.
483	Water transportation	Output is consumed by individuals and as a transportation margin on shipping goods to market. Output will grow as GDP and the population increase, but at a slower rate than productivity. As a result, employment will decrease.
484, 492	Truck transportation and couriers and messengers	Output is consumed by individuals and as a transportation margin on shipping goods to market and will grow as GDP and the population increase. Trucking has been accounting for a rising share of freight transportation revenue. Growth in the industry parallels economic upswings and downturns. Productivity will increase at a slower rate than output. Employment will continue to increase. Additional employment growth in the truck transportation industry will result from manufacturers' willingness to concentrate more on their core competencies—producing goods—and to outsource their distribution functions to trucking companies.
485	Transit and ground passenger transportation	This industry provides local and suburban passenger transportation services by bus, taxi, and subway. Output is purchased by individuals, by businesses, and by State and local governments for school transportation. Output will rise due to population growth, while productivity will decline, resulting in an increase in employment.
486	Pipeline transportation	Output is consumed as a transportation margin on shipping petroleum and will grow slightly as GDP and the population increase. Productivity will increase even less than output, resulting in no change to employment.
487, 488	Scenic and sightseeing transportation and support activities for transportation	Output is purchased by other transportation industries, by individuals, and as intermediate demand for exports. Output will increase as packaging, freight, cargo arrangement, and other transportation-related services remain instrumental to logistics management. Productivity will grow, but at a slower rate than output, resulting in employment growth.
491	Postal Service	Output is consumed by individuals and firms as a business expense and will rise slightly as the Postal Service delivers increasing numbers of packages shipped by manufacturers and delivery services on the final leg of their local delivery as first-class mail. Competition from private delivery companies and other industries, such as electronic communications, will continue to increase, dampening output growth. Productivity will increase with automation at a faster rate than output, due to the use of automated materials-handling equipment and optical character readers, barcode sorters, and other automated sorting equipment. Employment will continue to decline as a result of these combined factors.
493	Warehousing and storage	Output is consumed by individuals and as a transportation margin on shipping goods to market. Manufacturers' willingness to concentrate more on their core competencies and to outsource their distribution functions to warehousing companies will spur output growth. Firms in other industries will increasingly employ this industry's logistical services, such as inventory management and just-in-time shipping. Also, the expansion of electronic commerce, as more consumers and businesses make purchases over the Internet, will continue to increase demand for the transportation and logistical services of the warehousing industry. Productivity will rise at a much slower rate than output, resulting in increased employment.

Table IV–2. Factors affecting industry output and employment, 2002–12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
5111	Newspaper, periodical, book, and directory publishers	Output is purchased mostly by consumers. Output will go up slightly, driven mostly by custom publishing and growing demand for ethnic newspapers and magazines. In custom publishing, companies and other organizations order magazines from publishers specifically for their customers to increase customer loyalty and advertise new company products. Consolidation in the industry, a greater reliance on freelance writers, and the increasing automation of the prepress function in newspaper-printing plants will decrease the number of people needed in this industry. Due to efficiency gains, productivity will increase at a faster rate than output, and employment will decrease as a result.
5112	Software publishers	Output is purchased by government and as investment, with intermediates scattered among most industries. Output has grown and should continue to grow at a robust rate, given the proliferation of software across all segments of society. The software-publishing industry should be the beneficiary of rapid technological change, and productivity should continue to exhibit healthy gains. The emergence and rapid growth of video games should bode very well for software publishers. Productivity is increasing at a much slower rate than output, resulting in a significant increase in employment.
516, 518, 519	Internet services, data processing, and other information services	Internet services will expand as the amount of data generated by the Internet economy continues to grow. Both output and productivity should grow rapidly. Employment will continue to increase as well. While the Internet will grow and expand even more, offshore outsourcing—of data-processing jobs in particular—should temper employment growth.
512	Motion picture and sound recording industries	Most output is consumed as an input to motion picture theaters and television, with individuals and exports accounting for the rest. Output will increase as a growing population continues to enjoy movies as entertainment. Blockbuster films will dominate the industry, especially with the continued expansion of multiplex theaters and increased exports from film distribution rights. Productivity will rise, but at a slower rate than output; as a result, employment is expected to increase.
5151	Radio and television broadcasting	Output is purchased mainly by individuals and will increase with population and GDP growth. Increasing commuting times will account for a strong radio advertising market. Growing competition from other media sources—specifically, cable television and satellite TV—should continue to limit growth in television advertising revenue. Digital broadcasting and recording technology will continue to improve productivity at a faster rate than output growth, causing employment to decrease. Further productivity gains will result from the remote operation of stations and by combining multiple stations and should continue throughout the projection period.
5152, 5175	Cable and other subscription programming and program distribution	Output is purchased mainly by individuals. Moderate output growth will result from demand due to population and from GDP growth. Productivity will decrease as companies upgrade cable and other pay television infrastructures, allowing providers to deliver telephone and Internet services, as well as television programming. Increasing output and declining productivity will result in increases in employment.
517 except 5175	Telecommunications, except cable and other program distribution	Individuals purchase the largest share of output, followed by government, business, and other institutions. Output growth will be strong as advanced technology and competition lower prices for high-speed Internet access and wireless telephone services and as deregulation expands the breadth of residential telecommunication services offered. In addition, business demand is expected to rise as companies increasingly rely on their telecommunications systems to conduct electronic commerce. This industry's employment gains, however, are expected to be limited by productivity gains as technological improvements such as fiber-optic lines and advanced switching equipment increase the data transmission capacity of telecommunications networks.
521, 5221	Monetary authorities and depository credit intermediation	Output is consumed by individuals and organizations and will increase as banks offer a variety of financial products to compete with other financial service companies. Mergers are expected to continue, which can lead to cutbacks and consolidation, but to a lesser degree than before. Bank branches are making a comeback, but other factors, such as automated teller machines and Internet banking, will balance this service out. Output will increase rapidly, productivity almost as quickly. Back-office staff are most likely to be affected adversely by technology, which will continue to result in a streamlining of back-office functions, reducing the need for some tellers. Employment will increase slightly over the period.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
5222, 5223, 525,533	Nondepository credit intermediation and related support activities, funds, trusts, and lessors of nonfinancial intangible assets (except copyrighted works)	Output is consumed by individuals and organizations. A stable long-term growth path wherein interest rates on government bonds tend to their historical average will help sustain demand for loans from these nonbank lenders. Banks are opening their own finance and mortgage banking companies, causing an employment shift to this industry from the banking industry. Productivity gains due to innovations such as credit scoring will dampen employment growth in the loan and credit business. But productivity will increase more slowly than output growth, so employment, which has historically exhibited positive growth, is expected to continue to increase.
523	Securities, commodity contracts, and other financial investments and related activities	Output is consumed by individuals and financial and insurance firms. Rapid output growth is expected as the baby boomers enter their peak savings years and the population, in general, becomes more sophisticated about investing. Productivity will increase, although not as fast as output, as securities and mutual fund markets are automated. Increasing numbers of self-directed pension plans will continue to drive demand in this industry and will increase the demand for investment advisors to help people invest this pool of money, so employment will grow. In an effort to curb costs and to be more competitive in the market, most firms will be reluctant to add new employees to their payroll unless those employees are definitely needed.
5241	Insurance carriers	Output is purchased primarily by individuals and a variety of intermediate sectors and will increase as a growing and increasingly affluent population demands more insurance of all kinds, particularly health insurance. Population growth will stimulate demand for insurance products, yet as insurance companies begin to offer more information and services on the Internet, and as workers become more productive due to technological advancements, employment is expected to increase very little. Productivity will increase at a slower rate than output, and employment will increase slightly as a consequence.
5242	Agencies, brokerages, and other insurance related activities	Output is purchased mostly by the insurance carrier industry. Population growth will stimulate demand for insurance products, yet, as more information and services are offered on the Internet, and as workers become more productive due to technological advancements, employment is expected to increase very little. However, the number of agents employed directly by insurance carriers reportedly is declining, and this employment will shift to agencies and brokerages, so agent employment will most likely remain stable. Productivity will grow at a much slower rate than output, causing employment to increase modestly.
531	Real estate	Rising output will be purchased by individuals and businesses as rent, real estate commissions, or fees. The industry is more sensitive to the business cycle than most. New technology and consolidation will increase productivity less than output, resulting in modest employment growth.
5321	Automotive equipment rental and leasing	Output is purchased by individuals and by a variety of industries, including wholesale trade. Output will continue to increase following historical trends, due to firms' preference for leasing and renting motor vehicles. Productivity will grow less than output, and as a result, employment will increase.
5322-3	Consumer goods rental and general rental centers	Output is purchased primarily by individuals. Output growth will result from consumers' preference for leasing personal and household-type goods, because leasing and renting require smaller capital outlays than does purchasing. Productivity will increase at a slower rate than output, causing employment to rise.
5324	Commercial and industrial machinery and equipment rental and leasing	Services are purchased primarily by individuals, wholesale and retail trade, and construction. The industry is engaged chiefly in renting or leasing commercial and industrial-type machinery and equipment. Output will continue to increase, while productivity declines slightly, causing employment to rise.
5411	Legal services	Output is purchased by individuals and by a wide variety of industries, including insurance and wholesale and retail trade. Output should grow as new legal issues emerge with the increasing use of the Internet in business transactions. Output growth will be stimulated by increased litigation due to a rise in the amount and complexity of business activities. Productivity will decrease, and employment will increase more rapidly than output as a result.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
5412	Accounting, tax preparation, bookkeeping, and payroll services	Output is consumed primarily by individuals and as an intermediate input by a wide variety of industries and will continue to increase as firms contain expenses by outsourcing or using consultants. Productivity will be flat or actually will decrease, resulting in employment growth. Employment will not grow as fast as in the past, because of outsourcing abroad and because accounting firms will be prevented from performing all but audit-related work for clients.
5413	Architectural, engineering, and related services	Most output is purchased by individuals and by the construction and engineering industries. Output will increase as firms contract out for engineering and architectural services; the rate of increase, however, will be slower than otherwise, due to strong competition from imported services from India, Russia, and other countries. Productivity will increase at a rate only slightly slower than output, so employment will continue to grow, but also at a slow rate.
5414	Specialized design services	Output is purchased by individuals and most industries and will continue to increase. Productivity is expected to increase because graphic designers, the largest component, are heavy users and early adopters of new information technologies. Productivity growth will not keep pace with output growth, however, resulting in rising employment.
5415	Computer systems design and related services	Output is purchased by government, as personal investment by individuals, and as intermediate purchases by finance. This industry includes computer software development; networking and data communications; Internet and online services; data processing, maintenance, and repair; and other specialized consulting. Output will increase rapidly as businesses contract out computer-related functions to establishments in the industry. The category of computer networking and data communications has become one of the fastest-growing and technologically dynamic segments. Factors increasing demand for networks and network products and services include the Internet, the expansion of intranets and extranets, the need for remote access to computers, an increase in the number of PCs connected to LANs, and the growing importance of security. Productivity should continue to increase at a rate about half as fast as output growth, as computer networks, systems, and programs become more advanced. Employment will increase significantly over the projection period as a result. While there should continue to be growth in this industry, it will be tempered by a shift toward outsourcing information technology service jobs overseas.
5416	Management, scientific, and technical consulting services	Output is consumed primarily as an intermediate input by a wide variety of industries and will continue to increase as firms contain expenses by outsourcing or using consultants. Due to continued economic development and growing business complexity, businesses will continue to need advice on planning and logistics, the implementation of new technologies, and compliance with government tax, environmental, and employee benefits and workplace safety laws and regulations. Productivity will decline, assuring continued strong employment growth.
5417, 5419	Scientific research and development and other professional, scientific, and technical services	Output is consumed primarily by individuals. Growth in research-and-development expenditures for services such as scientific research, marketing research, and public-opinion polling will stimulate demand for output. Productivity will increase at a slower rate than output, so employment will continue to grow.
5418	Advertising and related services	Output is purchased by many industries, the largest being retail trade. Strong output growth is expected due to new opportunities created by the Internet and international markets and as functions within firms are specialized further. In the wake of corporate scandals, more emphasis will be placed on improving the image of the client and building public confidence. Growth will continue to be led by technology-oriented jobs, including programmers, graphic designers, and media managers. Productivity will grow fast, but at a slower rate than output, resulting in modest employment growth. Employment growth will be dampened by the increased use of more efficient nonprint media advertising, including the Internet and radio, which could result in some workers losing their jobs. Layoffs are common in advertising and public-relations service firms when accounts are lost, major clients cut budgets, or agencies merge.
55	Management of companies and enterprises	Output is consumed by individuals and firms. Output will grow at a rate faster than productivity, resulting in an increase in employment.
5611-2	Office administrative and facilities support services	Output is purchased by individuals, by government, and as an intermediate input by a variety of industries and will increase as this industry benefits from outsourcing. Productivity will rise at a slower rate than output, resulting in faster-than-average employment growth.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
5613	Employment services	Many intermediate industries purchase personnel services. Rapid growth in output will be encouraged by expansion of the industry to include many professional occupations, such as accountants, lawyers, managers, and engineers. In addition, firms will increasingly use personnel supply services to reduce costs, improve flexibility, and screen candidates for permanent positions. Productivity will rise more slowly than output, resulting in strong employment growth.
5614, 5616, 5619	Business support and investigation and security services and support services, n.e.c.	Many intermediate industries purchase miscellaneous business services. Output will continue to increase, driven by demand for security services and other business services. Productivity will increase at a slower rate than output, resulting in employment growth.
5615	Travel arrangement and reservation services	Most output is purchased by individuals, although intermediate output is purchased by many industries. Output is expected to increase, reflecting increasing business and leisure travel. However, productivity will rise more rapidly than output, due to the increased use of technology, especially the Internet. Employment will decrease as a result.
5617	Services to buildings and dwellings	Output is purchased by individuals and by many industries, including real estate, trade, educational services, and hotels. Output will continue to grow because of rising demand from increasing numbers of consumers. Productivity will continue to increase, but at a much slower rate than output, resulting in employment growth.
562	Waste management and remediation services	Output will grow as fast as GDP. Employment will grow slightly more slowly than output, due to a slight increase in productivity in this labor-intensive industry.
61	Educational services, private	Output is consumed mostly by individuals, with some government use and exports in the form of foreign students. Output will continue to increase in response to demand for education and training by individuals of all ages. Productivity will continue to decrease, employment to increase.
6211-3	Offices of health practitioners	Output is consumed by individuals and will increase, driven by a growing and aging population that will continue to demand a high level of quality healthcare services. Productivity will rise only slightly and at a much slower rate than output. As a result, employment will exhibit strong growth.
6214-6, 6219	Ambulatory health care services, except offices of health practitioners	Most output is consumed by individuals. This industry includes many fast-growing sectors, such as home healthcare, outpatient care centers, and medical and diagnostic laboratories. Fast growth of output will result. Productivity will increase at a much slower rate than output, resulting in strong growth for employment.
622	Hospitals, private	Output is consumed by individuals and will increase, driven by a growing and aging population. Productivity will increase at a slower rate than output, and employment growth will result. Employment growth in hospitals will be constrained somewhat by an increase in ambulatory or same-day surgery, advances in treatment, and a continued emphasis on controlling costs by diverting some care to more cost-effective outpatient and ambulatory care settings.
6231-2	Nursing care and residential mental health facilities	Output is consumed by individuals. Output will increase, driven by an aging population and increasing demand for nursing and mental health care. Declining productivity will result in rising employment, but growth will be limited by the relatively high costs of facility-based care and by consumer preference for care provided in alternative settings, such as in homes or other community-based residential care facilities.
6233, 6239	Community care facilities for the elderly and residential care facilities, n.e.c.	Most output is consumed by individuals. Output will increase due to rising demand for services from a growing elderly population with a desire to maintain independent lifestyles. Productivity will decline and employment will increase rapidly as a result.
6241-3	Individual, family, community, and vocational rehabilitation services	Output is consumed by individuals. Output growth will be due mostly to the expansion of services for the elderly and the aging baby-boom generation. Similarly, services for the mentally ill, the physically disabled, and families in crisis will be expanded. Increasing emphasis on providing home care services rather than more costly nursing home or hospital care, and on earlier and better integration of the physically disabled and mentally ill into society, also will contribute to growth, as will increased demand for drug and alcohol abuse prevention programs. Productivity will remain essentially flat, resulting in strong employment growth, especially in private social service agencies, as State and local governments contract out their social services in an effort to cut costs. Employment growth will depend, in large part, on the amount of funding made available by government and private organizations.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
6244	Child day care services	Output is consumed entirely by individuals. Continued rapid output growth will result from growth in both the number of children under 5 years old and the labor force participation rate of women of childbearing age. Growth in the number of employer-operated centers and government increases in funding and promotion also will stimulate demand. Productivity will increase, but at a much slower rate than output, resulting in strong employment growth.
7111, 7113-5	Performing arts companies, promoters, agents, managers and independent artists	Output is purchased by individuals, by food services and drinking places, and as input to many industries. Output is increasing due to demand from a growing population with more leisure time. Productivity will increase at a slower pace than output growth, resulting in employment growth.
7112	Spectator sports	Output is consumed by individuals and by radio and television broadcasting. Output will grow as a larger population with more leisure time becomes increasingly interested in sports. Productivity will decline slightly, resulting in employment growing even faster than output.
712	Museums, historical sites, and similar institutions	Most output is consumed by individuals and will continue to grow as public interest in science, art, and history increases due to growth in both leisure time and disposable income. Productivity will rise, but at a much slower rate than output, resulting in increased employment.
713	Amusement, gambling, and recreation industries	Output is purchased by individuals and will continue to grow due to increasing disposable income, leisure time, and awareness of the health benefits of physical fitness. Productivity will increase, but at a slower rate than output, causing employment to increase as a result.
7211	Traveler accommodation	Output is purchased by individuals and businesses. Output will increase due to demand for short-term lodging. Productivity will increase at a slower rate than output, resulting in average employment growth.
7212-3	RV parks, recreational camps, and rooming and boarding houses	Output is consumed by individuals. Output will continue to increase due to demand for recreational parks, campgrounds, and vacation camps, reflecting increased amounts of leisure time and disposable income. Productivity will grow, but at a much slower rate than output, causing employment to rise.
722	Food services and drinking places	Output is consumed primarily by individuals. Output will increase due to demographic factors such as increases in population, growth of personal income, increased leisure time, and a rise in the number of dual-income families. Productivity will increase as the shift from more formal to more casual dining and from independent to chain establishments promotes centralized operations and a greater use of automated equipment. Still, productivity will rise at a slower rate than output. As a result, employment will increase.
8111	Automobile repair and maintenance	Output is consumed primarily by individuals and will increase as the growing population of increasingly affluent individuals demands services such as carwashes and quick oil changes. Output growth will be constrained because newer cars have become more reliable over time and need less servicing and repair. Productivity will increase, but at a slower rate than output, and employment will grow as a result.
8112	Electronic and precision equipment repair and maintenance	Output is purchased by individuals and government, with intermediate consumption scattered among most industries. Output will increase slightly, but growth will be constrained as mass-produced electrical equipment becomes cheaper to replace than repair. Productivity will increase more than output, and employment will decline as a result.
8113	Commercial and industrial equipment (except automotive and electronic) repair and maintenance	Output is consumed mostly by intermediate consumption scattered among most industries. Output will increase faster than productivity, causing employment to rise.
8114	Personal and household goods repair and maintenance	Output is consumed mostly by intermediate consumption scattered among many industries. Output will increase slightly, constrained by more disposable consumer goods that are cheaper to replace than repair. Productivity will increase at a pace almost equaling output growth, resulting in limited employment growth.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
8121	Personal care services	Output is consumed by individuals. Output will continue to grow as demand for personal care services is driven by a growing population, rising incomes, and increased demand for improved personal care or grooming. Productivity will increase, but at a slower rate than output, resulting in employment growth.
8122	Death care services	Output is purchased mostly by individuals. Output should continue to rise as the population and the number of deaths increase. Productivity will increase in areas such as embalming, but at a slower rate than output, so employment will increase.
8123	Drycleaning and laundry services	Output is used mainly by individuals, but also is contracted for by a number of industries, such as food services and drinking places. Output will increase, driven by a growing, increasingly affluent population. Fewer stores will be family owned and operated than in the past. The use of central drycleaning facilities that process work for multiple stores will result in rising productivity, although output will grow even faster. Total employment will increase slightly due to an increase in wage and salary workers, but the number of self-employed and unpaid family workers will decline.
8129	Other personal services	Output is purchased mainly by individuals and will increase due to sustained demand for individual services such as the use of parking lots and garages. Productivity will increase at a slower rate than output, resulting in continued employment growth.
8131-3	Religious, grantmaking and giving services, and social advocacy organizations	Output is consumed mostly by individuals. Output will increase due to growing demand from an increasingly affluent population involved in advocacy groups for such causes as religion, human rights, and conservation. Productivity will increase, but at a slower pace than output growth, so employment will rise.
8134, 8139	Civic, social, business, and similar organizations	Output is consumed mostly by individuals. Output will increase slightly faster than the population, due to rising demand for the services of civic, social, business, and similar organizations. Productivity will decline, leading to employment growth.
814	Private households	Output is purchased by individuals and will increase because of demand for inside workers. Government regulation of the workplace makes the use of private household workers expensive relative to the use of specialized firms, constraining industry growth. Productivity will increase, and employment will decline as a result.
...	Federal electric utilities	Output will increase, but at a rate slower than productivity. Employment will decline as a result.
...	Federal Government enterprises, n.e.c.	Output will increase in response to demand for federally delivered services. Productivity will increase at a much faster rate than output, and as a result, employment will decrease significantly.
...	Federal general government	Output will increase slightly as the Federal Government continues to take responsibility for pressing issues such as public safety and security. Growth will be constrained by budgetary concerns, the growing use of private contractors, and the transfer of some functions to State and local governments. Productivity will remain unchanged, and employment will increase slightly as a result.
...	Local government passenger transit	Output will increase as more people use public transportation. The demand for mass-transit programs and initiatives will shape the industry. Productivity will decline, and employment will increase as a result.
...	State and local electric utilities	Output will increase in response to industry deregulation on the national level, which will spur State and local participation in some areas of the country. Productivity will increase at a slower rate than output, and employment will increase as a result.
...	State and local government enterprises	Output will increase in response to demand from consumers for such services as State liquor stores. Productivity will increase almost as fast as output, and employment will rise only slightly as a result.
...	State and local government hospitals	Output will increase as public hospitals provide safety-net services to trauma victims, the poor, and the uninsured. Productivity will increase at a slightly slower pace than output, resulting in minimal employment growth.

Table IV-2. Factors affecting industry output and employment, 2002-12—Continued

<i>NAICS code</i>	<i>Industry title</i>	<i>Factors affecting output and employment</i>
...	State and local government education	Output, which is measured as the compensation of government employees, will increase in response to demand for education and training by individuals of all ages. There will be no change in productivity, so employment will increase slightly faster than output.
...	State and local general government, n.e.c.	Output, which is measured as the compensation of government employees, will increase. Productivity will decrease slightly, so employment will rise at a slightly faster rate than output.

Table IV-3. Factors changing occupational utilization, 2002-12

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
11-1031	Legislators	Small decreases will occur in State and local government, excluding education and hospitals, to account for virtually no growth in the number of elected officials as other parts of government grow.
11-2011	Advertising and promotions managers	A moderate increase will occur in advertising and related services because of increasing global competition for the sale of goods and services and because more companies are expected to outsource their advertising to these agencies.
11-2021	Marketing managers	A moderate increase is expected in computer systems design and related services as these establishments promote their services and strive to broaden their client bases in a competitive marketplace. A small increase will result in advertising and related services from increased outsourcing of advertising work by other industries.
11-2022	Sales managers	Small to moderate increases are expected across all industries to manage increased marketing efforts.
11-2031	Public relations managers	A moderate increase is expected in advertising and related services as companies take a proactive approach to avoiding bad public relations, building trust in their products, and raising their visibility.
11-3011	Administrative services managers	A moderate increase is expected in management, scientific, and technical consulting services as firms in other industries increasingly utilize administrative management consulting services.
11-3021	Computer and information systems managers	Small increases are expected across all industries as firms continue to embrace new technologies and employ more computer specialists who must be managed.
11-3061	Purchasing managers	Small decreases are anticipated in most industries as electronic commerce increases productivity and allows for smaller staffs, resulting in a reduced need for managers.
11-9011	Farm, ranch, and other agricultural managers	Small increases are expected across all industries as corporate and absentee ownership increases demand for professional management.
11-9031	Education administrators, preschool and childcare center/program	A small increase is expected in local government educational services due to the expansion of formal preschool programs as fewer private households care for young children.
11-9033	Education administrators, postsecondary	The number of postsecondary school students is projected to grow more rapidly than other student populations, resulting in a small increase in private educational services.
11-9071	Gaming managers	A small increase will occur in traveler accommodation due to greater consumer interest in gambling and because growth in the average establishment size will result in a need for more management workers.
11-9081	Lodging managers	A small decrease is expected in traveler accommodation because extended-stay and economy-class establishments, which will account for an increasing share of lodging establishments, require a lower proportion of lodging managers.
11-9111	Medical and health services managers	The increasing complexity of physician practices and hospitals, a more stringent regulatory environment, and an increased reliance on managers for efficient and effective office operations will result in small increases in offices of physicians and public and private hospitals.
11-9141	Property, real estate, and community association managers	A small decrease in lessors of real estate and small to moderate increases in activities related to real estate and offices of real estate agents and brokers will result as real estate sales practices shift from individual owner-operators toward professional third-party management companies.
13-1022	Wholesale and retail buyers, except farm products	Small decreases will result in most industries as efficiency gains from electronic commerce allow customers to circumvent buyers and connect directly with business Web sites and with purchasing operations that are more centralized.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
13-1051	Cost estimators	Small increases are expected in nonresidential building construction, residential building construction, and utility system construction due to the continuing need to control costs and the increased complexity of estimating construction costs.
13-1061	Emergency management specialists	Small increases are expected in all industries as the demand for emergency-related services continues to rise.
13-1072	Compensation, benefits, and job analysis specialists	Small increases will occur across all industries to help implement legislative and court rulings on benefits and other employment matters.
13-1073	Training and development specialists	Small to moderate increases are expected in most industries as the rising complexity of jobs results in higher training requirements.
13-1111	Management analysts	A moderate increase is expected in management, scientific, and technical consulting services because regulations that restrict accounting firms from providing consulting services will result in more businesses seeking these services from traditional consulting firms. A moderate increase in Federal government will result as more management analysts are used to help streamline operations and reduce costs. A small increase is anticipated in computer systems design and related services as computer firms increase their consulting operations, especially in electronic commerce and technology management. A moderate increase in office administrative services will occur as more firms outsource the management of day-to-day business activities. A very large decrease is expected in accounting, tax preparation, bookkeeping, and payroll services because of new regulations that restrict accounting firms from providing consulting services.
13-1198	All other business operations specialists	Small increases will occur in all industries as companies seek to cut costs and increase efficiency.
13-2011	Accountants and auditors	A small increase is expected in accounting, tax preparation, bookkeeping, and payroll services as accounting firms focus more on their primary services and less on other services, such as consulting, as a result of accounting scandals. Moderate decreases are expected in Federal government and in State government, excluding education and hospitals, as accounting software increases efficiency and as governments outsource accounting services.
13-2051	Financial analysts	A small decrease is expected in securities and commodity contracts intermediation and brokerage as a result of industry consolidation. A moderate increase is expected in depository credit intermediation as a result of industry deregulation.
13-2052	Personal financial advisors	Moderate increases are expected in all industries as a result of growing demand for financial services, such as retirement planning, and because of industry deregulation, which allows insurance agents, stockbrokers, and bankers to offer a wider range of products.
13-2053	Insurance underwriters	A small decrease is anticipated in agencies, brokerages and other insurance activities as workers become more productive due to the implementation of underwriting software and information technology.
15-1021	Computer programmers	Small decreases across all industries are expected as establishments shift emphasis from programming to design, development, and analysis and due to the outsourcing of programming to other countries.
15-1031	Computer software engineers, applications	Small increases are expected across all industries due to increasing demand for computer applications software and specialized utility programs designed and developed to meet users' needs.
15-1032	Computer software engineers, systems software	Small to moderate increases are expected across all industries due to the continuing need to design and develop new operating systems-level software and network distribution software, as well as to the need to maintain current systems and insure information security.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
15-1051	Computer systems analysts	Small increases are expected across all industries due to increasing demand for new applications of technology, such as networking and systems integration.
15-1061	Database administrators	Small to moderate increases will result across all industries as the growing amount of information available requires more database administrators to store and administer data effectively and securely.
15-1071	Network and computer systems administrators	Small increases are expected across all industries as organizations develop and expand network, Internet, and Intranet systems and conduct more business electronically.
15-1081	Network systems and data communications analysts	Moderate increases are expected across all industries due to the continued expansion of the Internet, increasingly complex wired and wireless networks, firms' growing reliance on Web sites, and more emphasis overall on the security and protection of electronic information.
15-2021	Mathematicians	A small decrease is expected in all industries as other workers with mathematical backgrounds, but a wider range of skills—such as engineers, computer scientists, and physicists—perform work traditionally performed by mathematicians.
15-2031	Operations research analysts	A large decrease is expected in computer systems design and related services and data-processing, hosting, and related services as firms hire more computer scientists and systems analysts, who have a broader range of computer skills, rather than operations research analysts.
15-2041	Statisticians	Small decreases will result in all industries as improved statistical packages decrease the need for statisticians and as more statistical work is performed by workers with broader skills, such as engineers, computer scientists, and other scientists.
17-1021	Cartographers and photogrammetrists	A small increase is expected in architectural, engineering, and related services as these firms diversify and expand to include services such as cartography and photogrammetry.
17-2031	Biomedical engineers	Small increases are expected in all industries due to an aging population and increased emphasis on health issues, which will increase the need for sophisticated biomedical equipment.
17-2071	Electrical engineers	Small decreases are anticipated across most industries as engineering services are increasingly purchased from abroad.
17-2072	Electronics engineers, except computer	Small increases are expected in most industries as these workers continue to be at the forefront of developing and integrating new information and communication technologies.
17-2081	Environmental engineers	Moderate increases are expected in all industries due to increased demand for environmental-related engineering projects and as this occupation gains acceptance as a separate engineering discipline.
17-2112	Industrial engineers	Moderate increases are expected in motor vehicle and motor vehicle parts manufacturing due to an increased use of these workers to improve quality and productivity.
17-2141	Mechanical engineers	Small decreases are expected in most industries as engineering services are increasingly purchased from abroad.
17-3011	Architectural and civil drafters	Small decreases are expected across all industries, except architectural, engineering, and related services, as computer-aided design and drafting systems improve worker productivity.
17-3012	Electrical and electronics drafters	Small decreases will occur in all industries as computer-aided design and drafting systems improve worker productivity.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
17-3013	Mechanical drafters	Small decreases are expected across all industries as computer-aided design and drafting systems improve worker productivity.
17-3025	Environmental engineering technicians	Small increases are expected in all industries due to increased demand for environmental-related engineering projects and as this occupation gains acceptance as a separate occupation distinct from other engineering technicians.
17-3031	Surveying and mapping technicians	Small to moderate increases are expected in all industries as the demand increases for geographic information systems-related data-entry services.
19-1021	Biochemists and biophysicists	A moderate increase will occur in scientific research and development services, and a small increase will take place in pharmaceutical and medicine manufacturing, due to increased biotechnology-related research.
19-1022	Microbiologists	A moderate increase is expected in scientific research and development services, and small increases are anticipated in pharmaceutical and medicine manufacturing and Federal government, due to increased biotechnology-related research.
19-1029	Biological scientists, all other	Moderate increases are anticipated in scientific research and development services and in Federal government as the National Institute of Health's (NIH's) budget continues to grow, resulting in increased basic research and Federal grant money for drug development and design and for basic biological research.
19-1041	Epidemiologists	Small increases are expected in all industries due to a heightened awareness of bioterrorism and to infectious diseases increasing the need for epidemiological information.
19-1042	Medical scientists except epidemiologists	Small increases are expected in all industries due to budget increases for NIH that will translate into more basic medical research and development.
19-2031	Chemists	Small increases will result in scientific and research and development services, pharmaceutical and medicine manufacturing, and the Federal government as chemists become more heavily involved in drug research, design, and discovery.
19-2032	Materials scientists	A moderate increase will result in scientific research and development services as the chemical industry increasingly outsources work to firms that perform such services.
19-2041	Environmental scientists and specialists including health	Small increases will result in most industries due to a general heightened awareness regarding the need to monitor and improve the quality of the environment.
19-2042	Geoscientists, except hydrologists and geographers	As geoscientists perform more environmental audits and more site and risk assessments to meet environmental regulations, there will be a small increase in architectural, engineering, and related services.
19-2043	Hydrologists	Small increases are expected in Federal government and in architectural, engineering, and related services as more hydrologists are needed to evaluate issues related to water conservation, deteriorating coastal environments, rising sea levels, pollution control, and waste disposal.
19-4051	Nuclear technicians	A small decrease is expected in electric power generation, transmission, and distribution as the Nation's dependence on nuclear power as a source of energy decreases relative to its reliance on other sources of energy.
19-4091	Environmental science and protection technicians, including health	Due to increased emphasis on environmental issues, including the preservation of ecosystems, there will be a moderate increase across all industries.
19-4092	Forensic science technicians	Advances in forensics will increase the use of forensic science techniques to solve crimes, resulting in small increases in all industries.
19-4093	Forest and conservation technicians	A small decrease will occur in local government, excluding education and hospitals, as funding for forestry programs is expected to decrease in this industry.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
21-1013	Marriage and family therapists	Small decreases are expected in State and local government, excluding education and hospitals, as counseling services are increasingly outsourced.
21-1014	Mental health counselors	Small decreases are expected in State and local government, excluding education and hospitals, as counseling services are increasingly outsourced.
21-1015	Rehabilitation counselors	Small decreases are expected in State and local government, excluding education and hospitals, as counseling services are increasingly outsourced.
21-1022	Medical and public health social workers	There will be a small increase across most private healthcare and social assistance industries as a rapidly growing elderly population increases the demand for social services to coordinate the care of patients discharged from hospitals. Small decreases are expected in State and local government, excluding education and hospitals, due to governments increasingly outsourcing social work functions to private organizations and employing more social and human service assistants rather than social workers.
21-1023	Mental health and substance abuse social workers	Small increases are expected across most private healthcare and social assistance industries due to increasing demand for social services aimed at the mentally ill and at the prevention and treatment of substance abuse. There will be small decreases in State and local government, excluding education and hospitals, due to governments increasingly outsourcing social work functions to private organizations and employing more social and human service assistants rather than social workers.
21-1092	Probation officers and correctional treatment specialists	A small increase is expected in State government, excluding education and hospitals, due to the increasing number of offenders in prison and on parole and probation.
21-1093	Social and human service assistants	Small to moderate increases are expected across all industries, except State and local government, excluding education and hospitals, as a growing and aging population increases demand for social services and as establishments control costs by using more of these workers rather than social workers. Small decreases are expected in State and local governments, excluding education and hospitals, as governments increasingly outsource social work functions to private organizations.
21-2011	Clergy	A small decrease is expected in religious organizations as laypeople perform more duties and as religious organizations provide more social and educational activities.
23-1011	Lawyers	Large increases are expected in State and local government, excluding education and hospitals, as more lawyers are needed to prosecute a growing number of court cases and deal with a growing number of regulatory issues.
23-2011	Paralegals and legal assistants	Small increases are expected across all industries as firms increasingly substitute relatively lower cost paralegals and legal assistants for lawyers and law clerks.
23-2092	Law clerks	Small decreases are anticipated across all industries as firms replace law clerks with paralegals and legal assistants in an effort to contain the costs of delivering legal services.
23-2093	Title examiners, abstractors, and searchers	All industries are expected to experience moderate decreases as the increased use of electronic databases boosts productivity. In addition, many title examiners will be replaced by legal assistants.
25-1000	Postsecondary teachers	Small to moderate increases are expected in religious organizations and in State, local, and private educational services as the number of adult and college-aged students grows more rapidly than other student populations.
25-2011	Preschool teachers, except special education	Small increases are expected in local government educational services and religious organizations due to an expansion of formal preschool programs as fewer private households care for young children.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
25-2012	Kindergarten teachers, except special education	There will be a small increase in local government educational services, a moderate decrease in private educational services, and a small decrease in child daycare services as more States offer all-day kindergarten, causing a shift of employment from private educational services and child daycare centers into public elementary schools.
25-2021	Elementary school teachers, except special education	A moderate decrease is expected in private educational services as the number of elementary school students is projected to grow more slowly than other student populations in this industry.
25-2022	Middle school teachers, except special and vocational education	The number of middle school students is projected to grow more slowly than other student populations, resulting in a small decrease in local government educational services and a moderate decrease in private educational services.
25-2023	Vocational education teachers, middle school	A moderate decrease in private educational services and a small decrease in local government educational services are expected due to reduced funding for vocational education relative to funding for other areas of education.
25-2031	Secondary school teachers, except special and vocational education	A moderate decrease is anticipated in private educational services as the number of secondary school students is projected to grow more slowly than the postsecondary student population in this industry.
25-2032	Vocational education teachers, secondary school	Small to moderate decreases are expected in all industries as more emphasis is placed on academic achievement and accountability instead of vocational education.
25-2040	Special education teachers	A small increase is anticipated in local government educational services as an increasing number of students are classified as disabled.
25-3021	Self-enrichment education teachers	A rising trend toward lifelong learning is expected to spur small to moderate increases in almost all industries as the baby-boom generation enters retirement and has more leisure time to dedicate to self-enrichment.
25-4021	Librarians	Small to moderate decreases are expected in State, local, and private educational services as a result of the automation of library services and as libraries substitute more library technicians.
25-9021	Farm and home management advisors	Fewer farms and a shrinking farm population will result in small decreases in all industries.
25-9031	Instructional coordinators	A small increase is expected in private educational services due to changing curriculums. A small increase is expected in scientific research and development services due to an increased focus on improving education through research, as well as increasing Federal research funds.
27-1014	Multi-media artists and animators	A small increase is expected in newspaper, periodical, book, and directory publishers as firms retain multi-media artists and animators to generate more advertising revenue and improve the visual layout of their publications. A moderate decrease is anticipated in computer systems design and related services due to relatively faster growth in demand for hardware and software designers than for creative artists. A small decrease will occur in advertising and related services, an industry in which more workers are expected to work on a freelance or contract basis rather than as employees.
27-1022	Fashion designers	A moderate increase is expected in apparel, piece goods, and notions merchant wholesalers as wholesalers continue to expand their fashion design labels and enhance store branding by mass marketing clothing lines for distribution to their stores. A moderate increase is also expected in cut and sew apparel manufacturing as design work is retained while manufacturing moves offshore.
27-1024	Graphic designers	Moderate increases are expected in newspaper, periodical, book, and directory publishers, as well as in printing and related support activities, as graphic designers remain the principal creative talent for industry products and provide more graphics and visual images for Internet publications.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
27-1026	Merchandise displayers and window trimmers	A moderate decrease in advertising and related services and small decreases in other support services and management, scientific, and technical consulting services are expected as more of this work is performed by freelance designers who work on a project-by-project basis rather than as in-house staff.
27-1027	Set and exhibit designers	A small decrease is expected in performing arts companies as many set and exhibit designers switch from salaried jobs to contract or freelance positions.
27-1099	All other art and design workers	A small decrease in Federal government is anticipated due to the tendency to contract out functions that are not inherently governmental.
27-2011	Actors	A small decrease will occur in the motion picture and video industries as these industries become more diversified and rely more on contract performers rather than wage and salary employees.
27-2012	Producers and directors	A small decrease is expected in radio and television broadcasting as consolidation and nationalization lead to fewer on-air producers and directors of broadcasts and telecasts.
27-2031	Dancers	A small decrease will occur in performing arts companies, other amusement and recreation industries, and private educational services as dance is expected to become a smaller proportion of these industries.
27-2032	Choreographers	A small decrease is expected in State, local, and private educational services as tight budgets affect subject areas outside core courses.
27-3010	Announcers	Moderate decreases will occur in all industries as the radio industry consolidates, increases syndication, and improves technology.
27-3031	Public relations specialists	Small to moderate increases are expected in all industries as companies take a proactive approach to avoiding bad public relations, building trust in their products, and raising their visibility.
27-3041	Editors	Small decreases are expected in business, professional, labor, political, and similar organizations; radio and television broadcasting; advertising and related services; and State, local, and private educational services as more editorial work is done by managers and others or by freelance contractors.
27-3043	Writers and authors	Small decreases are expected in religious organizations; advertising and related services; and State, local, and private educational services as writing work is increasingly contracted out.
27-4013	Radio operators	Small to moderate decreases will result in all industries due to improvements in technology, especially the replacement of two-way radios with cell phones.
27-4021	Photographers	Small decreases are expected in newspaper, periodical, book, and directory publishers and other professional, scientific, and technical services as digital photography becomes less expensive and more widely available and enables individuals to produce and print their own photographs more easily.
29-1011	Chiropractors	A small decrease is expected in offices of other health practitioners as demand for chiropractic services will grow more slowly than demand for other healthcare services provided by this industry.
29-1020	Dentists	A moderate decrease is expected in offices of dentists as dentists hire more dental assistants and dental hygienists to perform routine tasks.
29-1031	Dietitians and nutritionists	A moderate decrease in nursing care facilities and a small decrease in State government, excluding education and hospitals, are expected as these industries continue to contract out services or substitute lower cost labor.
29-1041	Optometrists	A moderate decrease is expected in offices of other health practitioners because demand for optometric care will not increase as rapidly as demand for other healthcare services provided by the industry.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
29-1051	Pharmacists	Very large increases are expected in grocery, department, and other general merchandise stores because a rising proportion of these stores will have pharmacies. A moderate increase is expected in Federal government because more pharmacists will be needed to test the rising number of drugs and to help design and manage drug benefit plans for seniors. A moderate increase is expected in drugs and druggists' sundries merchant wholesalers because, as demand for cheaper medications rises, pharmacists will increasingly sell drugs at the wholesale level, especially to mail-order pharmacies.
29-1071	Physician assistants	A large increase is expected in public and private hospitals, and a small increase is anticipated in offices of physicians, as these cost-effective workers provide a growing proportion of services previously provided by physicians.
29-1081	Podiatrists	A moderate decrease is expected in offices of other health practitioners, and a small decrease is anticipated in offices of physicians, as the demand for other healthcare services provided by these industries increases more rapidly than demand for podiatric services.
29-1111	Registered nurses	Small increases are expected in nursing care facilities; offices of physicians; Federal government; outpatient care centers; and State, local, and private educational services due to sustained demand for high-quality healthcare, an aging population, increased regulation, and increases in health research.
29-1122	Occupational therapists	A moderate increase in nursing care facilities and small increases in offices of other health practitioners and in public and private hospitals are expected as a more active and independent elderly population demands more services.
29-1123	Physical therapists	Small increases are expected in nursing care facilities and in public and private hospitals as a growing and aging population demands more therapy services.
29-1124	Radiation therapists	Small increases are expected in offices of physicians and public and private hospitals as the result of increasing demand for therapy to meet the needs of an aging population.
29-1125	Recreational therapists	Small to moderate decreases are expected in most industries as cost-containment pressures limit the provision of recreational therapy services.
29-1126	Respiratory therapists	A moderate increase will result in public and private hospitals as the aging population leads to a higher incidence of heart and pulmonary diseases, boosting demand for respiratory therapists.
29-1127	Speech-language pathologists	Small increases are expected in nursing care facilities and in public and private hospitals as the incidence of speech and language disorders related to strokes and other age-related conditions rises with the growing elderly population.
29-2021	Dental hygienists	A small increase is expected in offices of dentists as dentists delegate more tasks to dental hygienists.
29-2031	Cardiovascular technologists and technicians	A moderate increase is expected in public and private hospitals as the demand for cardiovascular procedures increases due to an aging population that is more susceptible to heart disease.
29-2041	Emergency medical technicians and paramedics	A small increase is expected in local government, excluding education and hospitals, because these workers will be increasingly likely to work as paid professionals instead of volunteers.
29-2052	Pharmacy technicians	Large increases are expected in grocery, department, and other general merchandise stores because a rising proportion of these stores will have pharmacies. A small increase in health and personal care stores will result as pharmacy technicians increasingly take on routine tasks, such as counting pills and labeling containers.
29-2054	Respiratory therapy technicians	A moderate increase is expected in public and private hospitals as the aging population incurs a higher incidence of heart and pulmonary diseases, boosting demand for respiratory therapy technicians.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
29-2055	Surgical technologists	Small increases will result in offices of physicians and in public and private hospitals as cost-effective surgical technologists replace other personnel in the operating room.
29-2061	Licensed practical and licensed vocational nurses	Small decreases are expected in public and private hospitals, offices of physicians, and community care facilities as establishments substitute nursing or other health aides to provide nursing care.
29-2071	Medical records and health information technicians	A large increase in offices of physicians and small increases in nursing care facilities and public and private hospitals are expected as these establishments work to meet increasingly complex and demanding requirements for health information and insurance accountability.
29-2081	Opticians, dispensing	A moderate decrease is expected in offices of other health practitioners because demand for optometric care will not increase as rapidly as demand for other healthcare services provided by the industry.
31-1011	Home health aides	Moderate increases are anticipated in community care facilities for the elderly, nursing care facilities, and other residential care facilities as these facilities increasingly utilize home health aides to provide care for residents.
31-2011	Occupational therapist assistants	A moderate increase in offices of other health practitioners and a small increase in nursing care facilities will occur as a more active and independent elderly population demands more therapy services.
31-2012	Occupational therapist aides	Moderate increases will result in nursing care facilities and offices of other health practitioners as a more active and independent elderly population demands more therapy services.
31-2021	Physical therapist assistants	A moderate increase is expected in public and private hospitals, and small increases are anticipated in offices of other health practitioners and nursing care facilities, as a growing and aging population demands more therapy services.
31-2022	Physical therapist aides	A moderate increase in offices of other health practitioners, and small increases are anticipated in nursing care facilities and public and private hospitals, as a growing and aging population demands more therapy services.
31-9091	Dental assistants	A small increase in offices of dentists is expected as dentists continue to delegate routine tasks to dental assistants.
31-9092	Medical assistants	A moderate increase in offices of physicians, a large increase in public and private hospitals, and a small increase in offices of other health practitioners are expected as these flexible and relatively low cost workers are increasingly utilized.
31-9094	Medical transcriptionists	A small decrease is expected in public and private hospitals as more hospitals invest in speech-recognition and other technologies that allow for faster dissemination of medical reports and charts. These technologies will increase productivity and reduce the need for transcriptionists.
31-9096	Veterinary assistants and laboratory animal caretakers	A small decrease will result in other professional, scientific, and technical services as these workers are replaced by more highly skilled veterinary technicians and technologists.
33-1011	First-line supervisors/managers of correctional officers	A small increase is expected in Federal government as prisoner populations continue to rise. A small increase also is expected in State government, excluding education and hospitals, because State penal facilities tend to harbor criminals serving long sentences with little likelihood of parole.
33-1012	First-line supervisors/managers of police and detectives	Growth in the number of law-enforcement officers will result in moderate increases for Federal government and State government, excluding education and hospitals.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
33-1021	First-line supervisors/managers of firefighting and prevention workers	A small increase is expected in local government, excluding education and hospitals, as local governments assume an increasing amount of firefighting duties and as the number of paid professional firefighters increases.
33-2011	Firefighters	Small increases will result in State and local government, excluding education and hospitals, as more firefighting duties are delegated to State and local governments and as more firefighters become paid professionals.
33-3012	Correctional officers and jailers	A moderate increase is expected in State government, excluding education and hospitals, because State penal facilities tend to harbor criminals serving long sentences with little likelihood of parole. A moderate increase also is expected in Federal government as prisoner populations increase because of mandatory sentences with less likelihood of parole. A moderate increase is expected in facilities support services as these firms benefit from increased government outsourcing of correctional services.
33-3021	Detectives and criminal investigators	A large increase in Federal government and a small increase in State government, excluding education and hospitals, are expected due to the increasing need for improved intelligence and security.
33-3051	Police and sheriff's patrol officers	Small increases in State and local government, excluding education and hospitals, and a large increase in Federal government are expected as increasing emphasis is placed on public safety and security.
33-9021	Private detectives and investigators	A moderate increase in investigation and security services and small decreases in most other industries are expected as firms increasingly outsource investigative work.
35-1011	Chefs and head cooks	Small to moderate decreases are expected in limited-service eating places, traveler accommodation, other amusement and recreation industries, and drinking places (places that serve alcoholic beverages) as simplified menus reduce the demand for skilled chefs and head cooks. A small increase will result in special food services as the growing number of small establishments increases demand for chefs and head cooks.
35-1012	First-line supervisors/managers of food preparation and serving workers	Small to moderate decreases will occur in nursing care facilities; public and private hospitals; traveler accommodation; State, local, and private educational services; and other amusement and recreation industries as these establishments hire outside contractors to provide food services. Small increases are expected in special food services and grocery stores due to growing demand for catered, preprepared food and food service contractors.
35-2011	Cooks, fast food	A small decrease is expected in limited-service eating places due to the increased use of preprepared food. A small decrease is anticipated in full-service restaurants, where food preparation will require more skill than these workers typically possess.
35-2012	Cooks, institution and cafeteria	As establishments increasingly use outside contractors to provide food services, moderate decreases will result in all industries except special food services, in which a small increase is anticipated as these firms benefit from increased outsourcing by other industries.
35-2014	Cooks, restaurant	A moderate decrease is expected in other amusement and recreation industries because food service is not expected to grow as rapidly as other portions of the industry. A small decrease will occur in limited-service eating places as simplified menus reduce the demand for these workers.
35-2015	Cooks, short order	Small decreases are expected in full-service restaurants, limited-service eating places, and other amusement and recreation industries due to relatively slower growth in demand for short-order cooking.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
35-2021	Food preparation workers	A small increase is expected in full-service restaurants due to an increasing share of casual family-dining establishments that rely heavily on these workers. A moderate increase is expected in grocery stores as more prepared foods are offered as a convenience. Small to moderate decreases are expected in community care facilities for the elderly; public and private hospitals; nursing care facilities; and State, local, and private educational services as these establishments use outside contractors to provide food services.
35-3011	Bartenders	Small decreases will result in all industries, except drinking places (places that serve alcoholic beverages), as establishments eliminate full bar service.
35-3021	Combined food preparation and serving workers, including fast food	A small increase is expected in limited-service eating places as more work is done by workers who can combine steps and improve efficiency. A small decrease is expected in full-service restaurants because workers in this industry are more likely to be specialized.
35-3022	Counter attendants, cafeteria, food concession, and coffee shop	Small decreases are expected in traveler accommodation and in motion picture and video industries due to outsourcing. A small decrease will also occur in full-service restaurants due to the elimination of counter service.
35-3031	Waiters and waitresses	A small decrease is expected in traveler accommodation as these establishments use outside contractors to provide food services. A small decrease also is anticipated in limited-service eating places due to a reduction in table service.
35-3041	Food servers, nonrestaurant	Small decreases are anticipated in all industries as establishments use outside contractors to provide food services.
35-9011	Dining room and cafeteria attendants and bartender helpers	Small to moderate decreases are anticipated in all industries except full-service restaurants due to the contracting out of food services and relatively faster growth in less formal, more limited food services arrangements, which tend not to employ many in this occupation.
35-9031	Hosts and hostesses, restaurant, lounge, and coffee shop	A small decrease is expected in traveler accommodation as these establishments increasingly seek outside contractors to provide food services. A small decrease will result in limited-service eating places due to a reduction in table service arrangements that use these workers.
35-9098	All other food preparation and serving related workers	Small decreases are expected in State, local, and private educational services; traveler accommodation; nursing care facilities; and public and private hospitals as these establishments use outside contractors to provide food services. A small decrease in full-service restaurants is expected due to the trend to employ workers with more clearly defined duties.
37-2021	Pest control workers	A small decrease is expected in services to buildings and dwellings as technological advances increase worker productivity.
37-3011	Landscaping and groundskeeping workers	Increasing homeownership in subdivisions and complexes with common areas to maintain is expected to contribute to a small increase in services to buildings and dwellings.
37-3013	Tree trimmers and pruners	A small decrease is expected in local government, excluding education and hospitals, as work is increasingly contracted out.
37-9099	All other building and grounds cleaning and maintenance workers	A small decrease is expected in local government, excluding education and hospitals, as work is increasingly contracted out.
39-1011	Gaming supervisors	A small increase will result in traveler accommodation as the proportion of lodging establishments that offer gaming increases.
39-1012	Slot key persons	A small increase is expected in traveler accommodation as the proportion of lodging establishments that offer gaming increases.
39-3011	Gaming dealers	A small increase is expected in traveler accommodation as the proportion of lodging establishments that offer gaming increases.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
39-3012	Gaming and sports book writers and runners	A small increase is anticipated in traveler accommodation as the proportion of lodging establishments that offer gaming increases. A small increase will occur in spectator sports as gambling activities at these venues become more widespread.
39-3021	Motion picture projectionists	Moderate decreases are expected in all industries due to technology that allows projectionists to oversee multiple screens at the same time.
39-3031	Ushers, lobby attendants, and ticket takers	Small decreases are expected in all industries as technologies such as Internet and automated ticket purchasing diminish the need for these workers.
39-4021	Funeral attendants	A small increase is expected in death-care services due to the growing need for persons to assist funeral directors in the many tasks involved with funeral services, including helping individuals cope with their loss during the funeral.
39-5012	Hairdressers, hairstylists, and cosmetologists	A small decrease is expected in department stores as beauty shops become less prevalent in those stores.
39-6011	Baggage porters and bellhops	A small decrease will occur in traveler accommodation as economy and all-suite hotels grow in popularity compared with full-service hotels.
39-6032	Transportation attendants, except flight attendants and baggage porters	Small to moderate increases will result in scheduled air transportation and travel arrangement and reservation services as these workers are given more responsibility for safety and security.
39-9021	Personal and home care aides	A moderate increase is expected in individual and family services as demand for adult daycare and homemaker services grows. A small increase in private households is expected due to increasing demand for services from an aging population.
39-9031	Fitness trainers and aerobics instructors	A moderate increase is expected in other amusement and recreation industries due to a greater concern for health and fitness, resulting in the rapid growth of health clubs.
39-9099	Personal care and service workers, all other	Moderate increases are expected in civic and social organizations, individual and family services, nursing care facilities, vocational rehabilitation services, and community care facilities for the elderly as an aging population increases the need for adult daycare, homemaker, and other social services.
41-2022	Parts salespersons	Small to moderate decreases are expected in all industries due to increasing automation resulting from the use of the Internet, electronic commerce, and electronic data interchange.
41-3031	Securities, commodities, and financial services sales agents	A small decrease is expected in securities and commodity contracts intermediation and brokerage as the industry becomes more automated. A small increase is expected in depository credit intermediation due to industry deregulation, which allows securities, commodities, and financial services sales agents to offer a wider range of products.
41-3041	Travel agents	Small decreases are expected in all industries due to the automation of travel arrangement services and the increased use of the Internet for travel bookings.
41-9011	Demonstrators and product promoters	Small increases will occur across most industries, reflecting the increased use of demonstrations as an alternative or complement to other forms of marketing.
41-9012	Models	Small to moderate increases are expected across most industries as the increased volume of catalog and Internet sales requires more models to advertise merchandise.
41-9041	Telemarketers	Moderate decreases are expected in all industries as more people are given the opportunity to opt out of receiving telemarketing calls through no-call lists and the increased use of technology such as caller ID and devices that block calls.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
43-1011	First-line supervisors/managers of office and administrative support workers	Small decreases are expected in all industries as automation and technology increase the productivity of the workers of these supervisors, reducing the number of office and administrative support workers and hence the need for supervisors.
43-2011	Switchboard operators, including answering service	Small to moderate decreases are expected in all industries due to advances in voice recognition and other technologies.
43-2021	Telephone operators	Very large decreases are expected in all industries with the elimination of operator jobs due to automated information systems, voice-recognition technology, and the movement of operator jobs to other countries.
43-2099	All other communications equipment operators	Large decreases are expected in all industries with the elimination of jobs due to automated communications systems.
43-3011	Bill and account collectors	Small increases in all industries will occur as companies place greater emphasis on getting bills collected.
43-3021	Billing and posting clerks and machine operators	Automation will simplify the billing process, resulting in small decreases in all industries except accounting, tax preparation, bookkeeping, and payroll services—the industry in which companies are taking on the billing function as part of their services.
43-3031	Bookkeeping, accounting, and auditing clerks	Small decreases will result in all industries from the greater use of computers to simplify accounting processes.
43-3041	Gaming cage workers	Small decreases are expected in most industries due to the increased use of debitlike cards and other noncash payment mechanisms in place of cash.
43-3051	Payroll and timekeeping clerks	The implementation of automated timekeeping systems will result in small decreases in all industries except accounting, tax preparation, bookkeeping, and payroll services, which will benefit from outsourcing of payroll functions by other industries.
43-3061	Procurement clerks	The increased use of electronic commerce and the Internet to make purchases will result in small to moderate decreases in all industries.
43-4011	Brokerage clerks	Moderate to large decreases are expected in all industries due to growth of online trading.
43-4021	Correspondence clerks	Small to moderate decreases will occur across all industries due to productivity gains from the electronic handling of accounts and correspondence.
43-4041	Credit authorizers, checkers, and clerks	Moderate decreases will result in all industries as credit checking becomes highly automated, with new software that quickly analyzes credit histories.
43-4051	Customer service representatives	A small increase will result in depository credit intermediation as marketing and customer service play an increasing role at banks.
43-4061	Eligibility interviewers, government programs	Moderate decreases will occur in all industries as government programs, such as welfare, continue to be reformed and the role of government is decreased.
43-4071	File clerks	Moderate decreases are anticipated in all industries due to automation and the consolidation of recordkeeping functions.
43-4111	Interviewers, except eligibility and loan	A small increase is expected in public and private hospitals, as admitting clerks take on more functions.
43-4121	Library assistants, clerical	A small increase will result in local government, excluding education and hospitals, as library assistants take on tasks formerly performed by librarians.
43-4131	Loan interviewers and clerks	Moderate decreases will result in all industries as the process of applying and determining one's eligibility for a loan becomes increasingly automated and as simpler credit-scoring systems further reduce the need for personal followups.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
43-4151	Order clerks	Moderate decreases are expected in all industries except electronic shopping and mail-order houses as electronic commerce continues to expand and affect all transactions between consumers, businesses, and government, reducing the need for these clerks.
43-4171	Receptionists and information clerks	A small decrease is expected in offices of physicians due to the trend toward larger group practices, in which many practitioners share the services of one receptionist. An increasing number of independently operated beauty salons will result in a moderate increase in personal care services.
43-4181	Reservation and transportation ticket agents and travel clerks	A small decrease is expected in scheduled air transportation due to the increasing adoption of electronic ticketing and other technological advances.
43-4999	All other financial, information, and record clerks	Small decreases are anticipated in all industries due to increased automation of recordkeeping.
43-5011	Cargo and freight agents	Small decreases will result in most industries as technological improvements boost productivity.
43-5021	Couriers and messengers	Small to moderate decreases will occur in all industries. Despite an increasing volume of parcels and documents that must be handled and delivered as the economy expands, demand for these workers will continue to be adversely affected by the more widespread use of electronic information handling technologies such as e-mail and fax.
43-5032	Dispatchers, except police, fire, and ambulance	Small decreases will result in most industries due to the increased use of automated dispatching devices such as computers and global positioning systems.
43-5041	Meter readers, utilities	Moderate decreases are expected in all industries as automated meter-reading systems are increasingly used to improve productivity.
43-5053	Postal service mail sorters, processors, and processing machine operators	A small decrease is expected in the Postal Service due to the increasing automation of mail sorting.
43-5071	Shipping, receiving, and traffic clerks	Small decreases will result in all industries as increased automation, such as hand-held scanners and personal computers, boosts productivity.
43-5081	Stock clerks and order fillers	Small to moderate decreases are expected in all industries as the widespread use of computerized inventory control and other automated equipment improves productivity.
43-5199	All other material recording, scheduling, dispatching, and distributing workers	Moderate decreases will occur in all industries as the growing use of barcodes, scanners, and computerized recordkeeping software increases productivity.
43-6011	Executive secretaries and administrative assistants	Small decreases are anticipated across all industries due to the increased use of word-processing and other computer-related programs that allow other workers to do the work formerly done by these workers.
43-6013	Medical secretaries	Small decreases are anticipated across all industries due to the increased use of word-processing and other computer-related programs that allow other workers to do the work formerly done by these workers.
43-6014	Secretaries, except legal, medical, and executive	Moderate decreases are expected across all industries due to the adoption of word-processing and other computer-related programs that allow other workers to do the work formerly done by these workers.
43-9011	Computer operators	Moderate to large decreases will result across all industries due to the automation of systems and a shift in computer operation duties to other workers.
43-9021	Data entry keyers	Moderate to large decreases are expected in most industries due to the increased use of technology such as barcode scanners and voice- and character-recognition systems and because more data entry will be handled by other workers.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
43-9022	Word processors and typists	Very large decreases will result across all industries due to improvements in technology that allow other workers to perform these tasks.
43-9031	Desktop publishers	Moderate increases will occur across all industries due to improvements in technology that will continue to simplify the process of creating publication-ready material.
43-9041	Insurance claims and policy processing clerks	Small decreases are expected in all industries as computer technology boosts productivity.
43-9051	Mail clerks and mail machine operators, except postal service	Moderate decreases are expected across all industries as more communications are sent electronically.
43-9071	Office machine operators, except computer	Moderate decreases are anticipated across all industries as a result of computerization and easier-to-use technology that allow other workers to do the work formerly done by these workers.
43-9081	Proofreaders and copy markers	Small to moderate decreases are expected in all industries as proofreading software helps authors and writers proof their own work.
43-9111	Statistical assistants	Moderate decreases are expected across all industries as employers substitute workers with broader skills and as more powerful statistical software reduces the need for statistical assistants.
43-9999	All other secretaries, administrative assistants, and other office support workers	Moderate decreases will result in all industries from continuing automation that simplifies many of the tasks performed by these workers or allows other workers to do work previously done by these workers.
45-1000	Supervisors, farming, fishing, and forestry workers	Small increases are expected in crop and animal production, as these industries increasingly convert from independent farming to incorporated entities.
45-2091	Agricultural equipment operators	Small increases are expected in crop production and support activities for agriculture and forestry as an increasing number of farms are incorporated and less work is performed by self-employed farmers.
45-2093	Farmworkers, farm and ranch animals	A moderate increase is expected in animal production as an increasing number of farms are incorporated.
45-4011	Forest and conservation workers	A small decrease is expected in local government, excluding education and hospitals, as the result of local government budgetary constraints and a shift of work to State agencies.
47-2011	Boilermakers	Small decreases will occur across all industries due to the use of small boilers which generally require less assembly, and due to the assumption of some boilermaker duties by workers in other occupations.
47-2043	Floor sanders and finishers	A small decrease will result in all industries as the increased use of prefinished flooring replaces some sanded-in-place flooring.
47-2044	Tile and marble setters	Increased popularity of tiles and marble will result in small to moderate increases across all industries.
47-2051	Cement masons and concrete finishers	Small increases are expected across all industries due to increasing use of cement for its durability and strength.
47-2081	Drywall and ceiling tile installers	Small to moderate increases are expected across all industries due to occupational specialization taking away some of this work from carpenters and other construction workers, who sometimes do drywall and ceiling tile work.
47-2082	Tapers	Small increases are expected across all industries due to the increased use of occupational specialists to perform taping work previously performed by some carpenters and other construction workers.
47-2111	Electricians	Small to moderate increases are expected across all industries except building equipment contractors as new technologies increase the demand for electricians to install electrical-related technology and upgrade existing installations.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
47-2142	Paperhangers	A small decrease is expected in building finishing contractors as the demand for wallpapering is not likely to grow as rapidly as that for other services provided by the industry.
47-3011	Helpers—brickmasons, blockmasons, stonemasons and tile and marble setters	Small decreases will result across all industries due to more efficient building methods and the use of apprentices rather than helpers.
47-3015	Helpers—pipelayers, plumbers, pipefitters, and steamfitters	More efficient building methods and the use of apprentices rather than helpers will result in a small increase in building equipment contractors.
47-4011	Construction and building inspectors	A small increase will occur in architectural, engineering, and related services due to the increasing use of home inspectors in real estate transactions.
47-4041	Hazardous materials removal workers	A small increase is anticipated in all industries due to a growing awareness of hazardous materials—especially mold—and their effects, which will increase the demand for removal of these materials from the environment.
47-4061	Rail-track laying and maintenance equipment operators	Small decreases will result in all industries as improved tracklaying equipment boosts productivity.
47-5051	Rock splitters, quarry	A small increase is anticipated in nonmetallic mineral mining and quarrying as more of these workers are needed to extract stone and gravel to meet the growing needs of construction projects.
49-2011	Computer, automated teller, and office machine repairers	Small decreases are expected in most industries, as a result of increasing productivity and more reliable computers, automated teller machines, and other office equipment.
49-2021	Radio mechanics	Large decreases are expected in all industries as radio communications systems are replaced with cell-phone-based systems.
49-2022	Telecommunications equipment installers and repairers, except line installers	Small decreases are expected in most industries as technological improvements such as higher capacity switches and routers increase productivity.
49-2091	Avionics technicians	A small to moderate increase is expected in aerospace product and parts manufacturing as these firms increasingly perform repairs. A small decrease is expected in scheduled air transportation as these firms increasingly outsource repair work.
49-2092	Electric motor, power tool, and related repairers	Small decreases are expected in most industries due to improvements in electrical motor design that make motors more reliable and easier to repair.
49-2097	Electronic home entertainment equipment installers and repairers	Small decreases are expected in most industries, primarily as a result of the lower maintenance requirements of equipment with microelectronic circuitry.
49-3011	Aircraft mechanics and service technicians	Small decreases are expected in scheduled air transportation and Federal government as these industries increasingly outsource repair work. A small increase is expected in support activities for air transportation as these firms benefit from increased outsourcing by other industries. A moderate increase is expected in aerospace product and parts manufacturing as these firms increasingly perform repair work.
49-3023	Automotive service technicians and mechanics	A moderate increase is expected in automotive parts, accessories, and tire stores as these stores offer a broader array of automotive services, such as oil changes. A moderate decrease is expected in gasoline stations as they focus on other services, such as carwashes and convenience store amenities, rather than repair services.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
49-3031	Bus and truck mechanics and diesel engine specialists	Small decreases are expected in most industries as firms increasingly contract out repair services. However, a small increase is expected in automotive repair and maintenance as these shops provide more contract repair services. A small increase is also expected in motor vehicle and motor vehicle parts and supplies merchant wholesalers because an increasing number of diesel-trained mechanics and specialists will be needed to repair and tune the growing number of diesel-powered vehicles.
49-3043	Rail car repairers	A small decrease is expected in railroad transportation due to the consolidation of worker responsibilities.
49-9021	Heating, air-conditioning, and refrigeration mechanics and installers	Small to moderate increases are expected across all industries as maintenance, repair, and retrofitting of heating, air-conditioning, and ventilation equipment become higher priorities for customers due to unstable or increasing energy prices and greater energy consciousness.
49-9041	Industrial machinery mechanics	Small increases will result in all industries as technology is increasingly implemented in production facilities, thereby stimulating the demand for mechanics to install, repair, and maintain machinery.
49-9061	Camera and photographic equipment repairers	Moderate decreases will occur in all industries as digital camera technology improves and prices of new cameras fall, making more cameras cheaper to replace than repair.
49-9063	Musical instrument repairers and tuners	A small decrease is expected in sporting good, hobby, and musical instrument stores because growth in demand for musical instruments will remain closely tied to population growth.
49-9064	Watch repairers	A small decrease is expected in jewelry, luggage, and leather goods stores because most watches are not worth repairing.
49-9091	Coin, vending, and amusement machine servicers and repairers	A moderate increase is expected in grocery and related product wholesalers as consumers increasingly prefer the convenience of coin-operated vending machines. A small increase is expected in other amusement and recreation industries in response to increasing demand for coin-operated vending and amusement machines.
49-9095	Manufactured building and mobile installers	Increasing sales of manufactured and mobile homes relative to standard housing will result in small increases across all industries.
51-2021	Coil winders, tapers, and finishers	Small to moderate decreases will result in all industries as other technologies replace coils and as more productive equipment is introduced.
51-2022	Electrical and electronic equipment assemblers	Small to moderate decreases are expected in all industries as more productive equipment and manufacturing processes are used and strong foreign competition persists.
51-2023	Electromechanical equipment assemblers	Small decreases are anticipated in all industries as more productive equipment and manufacturing processes are used and strong foreign competition persists.
51-2031	Engine and other machine assemblers	Small decreases are anticipated in all industries as more productive equipment and manufacturing processes are used and strong foreign competition persists.
51-2041	Structural metal fabricators and fitters	Small decreases will result in most industries as more efficient equipment and manufacturing processes are used and strong foreign competition persists.
51-2092	Team assemblers	Small decreases will result in all industries as more efficient equipment and manufacturing processes are used and strong foreign competition persists.
51-2099	All other assemblers and fabricators	Moderate decreases will occur in all industries as more productive equipment and manufacturing processes are used and strong foreign competition persists.
51-3021	Butchers and meat cutters	A moderate decrease in grocery stores and a small decrease in specialty food stores are expected as more retail stores buy prepackaged meats.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
51-4021	Extruding and drawing machine setters, operators, and tenders, metal and plastic	Small decreases will result in most industries as more productive equipment and manufacturing processes are used and strong foreign competition persists.
51-4022	Forging machine setters, operators, and tenders, metal and plastic	Small decreases will occur in all industries as more productive equipment and manufacturing processes are used and strong foreign competition persists.
51-4052	Pourers and casters, metal	Small decreases will result in all industries as more efficient equipment and manufacturing processes are used and strong foreign competition persists.
51-4111	Tool and die makers	Small decreases will result in all industries due to advances in automation, including CNC machine tools and computer-aided design, that will increase productivity.
51-4194	Tool grinders, filers, and sharpeners	Small to moderate decreases are expected in all industries due to the increasing use of replaceable cutting tools.
51-4199	All other metal workers and plastic workers	Small decreases are expected in most industries as more productive equipment and manufacturing processes are used and strong foreign competition persists.
51-5011	Bindery workers	Small to moderate decreases are expected in most industries as bindery work is shifted to printing press operators.
51-5022	Prepress technicians and workers	Small to moderate decreases will occur in all industries as digital technology increases efficiency and allows much of this work to be done by clients.
51-6011	Laundry and dry-cleaning workers	Small decreases are expected in nursing care facilities and in public and private hospitals as these industries increasingly outsource laundry services.
51-6041	Shoe and leather workers and repairers	A small decrease is expected in other leather and allied product manufacturing as people increasingly prefer to buy relatively cheap new shoes instead of repairing old shoes.
51-6042	Shoe machine operators and tenders	Increasing offshore production and rising imports will lead to a small decrease in all industries.
51-6052	Tailors, dressmakers, and custom sewers	Small to moderate decreases will occur in most industries as customers continue to purchase new, ready-to-wear items instead of having older clothes altered, repaired, or made from scratch.
51-6062	Textile cutting machine setters, operators, and tenders	Advances in production technology will increase productivity, resulting in small decreases in most industries.
51-6091	Extruding and forming machine setters, operators, and tenders, synthetic and glass fibers	A small increase will occur in fiber, yarn, and thread mills due to increasing demand for synthetic fiber relative to other fibers.
51-6092	Fabric and apparel patternmakers	A small decrease is expected in cut and sew apparel manufacturing due to increased productivity in patternmaking by using computer-aided design.
51-6093	Upholsterers	As manufacturers become more automated and efficient in producing furniture and automotive seat coverings that are more durable, moderate decreases will occur across all industries.
51-7040	Woodworking, machine setters, operators, and tenders, except sawing	Small decreases are expected in all industries due to the introduction of more efficient machinery and manufacturing processes.
51-7041	Sawing machine setters, operators, and tenders, wood	Small decreases are expected in all industries due to the introduction of more productive higher capacity machinery.
51-7099	All other woodworkers	Small decreases will result in all industries due to the introduction of more productive machinery and manufacturing processes.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
51-8012	Power distributors and dispatchers	A small decrease is expected in local government, excluding education and hospitals, as the result of increasing automation.
51-8021	Stationary engineers and boiler operators	A small decrease is expected in most industries. Although commercial and industrial development will increase the number of systems to monitor and maintain, increased automation will boost worker productivity.
51-8031	Water and liquid waste treatment plant and system operators	A moderate increase is expected in water, sewage, and other systems as Federal guidelines on operator certification cause many existing and new small communities to contract out plant operations to firms in this sector.
51-8092	Gas plant operators	Moderate to large increases are expected in natural-gas distribution, the pipeline transportation of natural gas, and electric power generation, transmission and distribution as automation decreases the need for other workers in these industries. There is usually only one plant operator per facility, so it is not often possible to eliminate gas plant operators.
51-9021	Crushing, grinding, and polishing machine setters, operators, and tenders	Small decreases are expected in most industries as more productive equipment and manufacturing processes are used and strong foreign competition persists.
51-9023	Mixing and blending machine setters, operators, and tenders	Small decreases are expected in most industries as more productive equipment and manufacturing processes are used and strong foreign competition persists.
51-9041	Extruding, forming, pressing, and compacting machine setters, operators, and tenders	Small decreases are expected in most industries as more productive equipment and manufacturing processes are used and strong foreign competition persists.
51-9061	Inspectors, testers, sorters, samplers, and weighers	Small decreases are anticipated in most industries as production workers increasingly perform quality inspections in addition to their other duties.
51-9071	Jewelers and precious stone and metal workers	A small increase will occur in other miscellaneous manufacturing. While some technological advances have rendered jewelrymaking more efficient, many tasks cannot be fully automated.
51-9081	Dental laboratory technicians	A moderate decrease is expected in offices of dentists as more work is contracted out to dental laboratories.
51-9083	Ophthalmic laboratory technicians	Small to moderate decreases are expected in offices of other health practitioners, employment services, and health and personal care stores due to increased automation of lensmaking machinery, which boosts productivity.
51-9131	Photographic process workers	Small decreases are expected in all industries as digital technology makes it easier for individuals to print, copy, and alter photographs with the use of personal computers and equipment.
51-9132	Photographic processing machine operators	Small decreases are expected in all industries as digital technology makes it easier for individuals to print, copy, and alter photographs with the use of personal computers and equipment.
51-9198	Helpers—production workers	Small decreases are expected in most industries as more efficient equipment and manufacturing processes are used and strong foreign competition persists.
53-2011	Airline pilots, copilots, and flight engineers	A moderate increase is expected in couriers because of increasing security requirements for shipping freight on scheduled air carriers.
53-2021	Air traffic controllers	A small increase is expected in Federal government due to an anticipated increase in commercial aircraft traffic.
53-3011	Ambulance drivers and attendants, except emergency medical technicians	A moderate decrease is expected in other ambulatory healthcare services because these workers are concentrated in a portion of the industry that will not grow as rapidly as the rest of the industry.

Table IV-3. Factors changing occupational utilization 2002-12—Continued

<i>Matrix code</i>	<i>Matrix occupation title</i>	<i>Factors changing occupational utilization</i>
53-3031	Driver/sales workers	Small decreases are expected across most industries as companies increasingly shift sales, ordering, and customer service tasks to sales and office staffs and use regular truck drivers to make deliveries to customers.
53-4021	Railroad brake, signal, and switch operators	Moderate decreases are expected in all industries due to technological improvements and the consolidation of job responsibilities.
53-4039	Subway, streetcar operators and all other rail transportation workers	A moderate increase is expected in rail transportation due to increasing demand for passenger rail transit in many municipalities.
53-6031	Service station attendants	Small decreases will result in all industries due to the continued shift to self-service.
53-7051	Industrial truck and tractor operators	Small decreases are expected in most industries due to the growing automation of material handling in factories and warehouses.
53-7061	Cleaners of vehicles and equipment	Small decreases will result in all industries from technological improvements in cleaning equipment that raise productivity.
53-7062	Laborers and freight, stock, and material movers, hand	Small to moderate decreases are expected in all industries due to automation and advances in material-moving machinery and equipment.
53-7063	Machine feeders and offbearers	Small decreases are expected in most industries due to the automation of machine-tending tasks.
53-7081	Refuse and recyclable material collectors	A small decrease is expected in local government, excluding education and hospitals, due to the increased outsourcing of refuse collection to independent contractors.
53-7111	Shuttle car operators	The increased use of technology, such as conveyor belts that reduce the need for shuttle cars, will lead to a small decrease in coal mining.
53-7199	Material moving workers, all other	Small decreases are anticipated in most industries due to more productive material-handling machinery and procedures.